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Making Sense of Complex Problems:
A Resource for Teams

Anna Grome
Beth Crandall
Applied Research Associates, Inc.

Kimberly A. Metcalf
U.S. Army Research Institute

Dawn Laufersweiler
Robert Strouse
Applied Research Associates, Inc.

**U.S. Army Research Institute
for the Behavioral and Social Sciences**

**Department of the Army
Deputy Chief of Staff, G1**

Authorized and approved:

**MICHELLE SAMS, Ph.D.
Director**

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This research report offers an integrative view of key challenges that military design teams encounter, and describes lessons, strategies, and approaches used by military leaders to optimize the performance of design teams in operational contexts. Topics include assembling design teams, managing intergroup dynamics, fostering cognitive flexibility, integrating non-military SMEs into the team, capturing the team's evolving understanding, and conveying insights to stakeholders. The report presents findings from previous research on teams as well as insights from interviews and a survey with those who have worked in design teams in operational settings.

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MAKING SENSE OF COMPLEX PROBLEMS: A RESOURCE FOR TEAMS

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Making Sense of Complex Problems: A Resource for Teams

In contemporary operations, U.S. military forces regularly encounter unfamiliar, ill-defined, and seemingly wicked problems for which there are no obvious solutions. Military Commanders and their planning staffs are finding that for some problem sets, there is benefit to taking a step back and developing a holistic understanding of the problem space before determining possible actions. Developing a greater understanding of complex problems involves engaging in open discourse and debate, and working collaboratively to question basic assumptions and considering alternative perspectives on the situation. Developing a greater understanding of the problem also involves considering a host of interconnected factors - e.g., social, cultural, economic, political, diplomatic, and military - in order to understand how these factors interact and influence one another as part of a holistic system. Once Commanders, their staffs, and allied partners achieve a greater appreciation for the complexity of the problem space, they are better positioned to think creatively about appropriate military actions.

Purpose of the Team Resource

The purpose of this Team Resource is to assist those who are working collaboratively to make sense of complex and unfamiliar problems in real-world settings, and to determine well-informed and innovative ways to address these unfamiliar problems.[1] The resource offers practical tips, strategies, and examples designed to support planning teams and their leaders in optimizing the team's performance and delivering high-impact products to key stakeholders. The tips and strategies provided here are real-world solutions that military and civilian leaders and their teams have found useful for engaging in conceptual planning and complex problem-solving activities. The strategies offered are not one-size-fits-all, and some of the strategies may not be appropriate or useful for particular teams or situations. We encourage the users of this resource to use discretion about which tools and approaches may or may not fit their team's specific organization, challenge, or situation.

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[1] A variety of descriptive labels have been applied to teams engaged in conceptual planning and design-like activities, including design teams, strategic planning teams, complex problem solving teams, and sometimes simply planning teams. All of these labels fit the team activities that are the focus of this Team Resource; but for purposes of consistency, we will use the terms planning team (as in ADRP 5-0) or problem-solving team throughout the resource.

Intended audience. The Team Resource was developed for military planning team members and leaders who are working, in support of their Commander, to gain a shared understanding of unfamiliar, ill-defined, and complex problems. Additionally, the Team Resource contains information that may be beneficial for Commanders who are commissioning a planning team in response to specific mission or operational challenges that forces are encountering. Finally, the Team Resource may be useful to those who are teaching aspects of leadership, strategic thinking, design, and the Army Design Methodology (ADM).

What the Team Resource is NOT. The Team Resource is not intended to provide a theoretical grounding in conceptual planning, ADM, or problem solving, or to serve as a source of academic perspectives and research. Nor does the resource provide prescriptive guidance about how to lead planning teams. Instead, the resource provides real-world challenges that planning teams face when working to understand, and develop approaches for managing the nature of complex and unfamiliar problem sets. The resource offers examples and describes practices that planning teams operating in real-world environments have found useful and effective.

Source of the material. The information contained in the Team Resource is based on the following sources:

- A set of in-depth interviews conducted with experienced military planners and leaders (U.S. Army and Marine Corps). Interview participants had all led and/or been a core member of a planning team engaged in complex problem framing and problem solving activities. Their insights, experiences, and examples provide the core data set we drew on to develop the Team Resource.
- Individuals who have led strategic planning, design, and/or problem-solving teams in the civilian context were also interviewed for the resource. These interviewees provided insights that included a look at how conceptual planning activities occur in a very different context.
- We reviewed the military and academic literature on teams and on design and complex problem solving.
- Finally, given the parallels between complex problem-framing, problem-solving and applied research activity, we drew on our own experiences as researchers and the tools, techniques, and strategies we have found useful for making sense of ill-defined problems in our field.

Content and Organization

      The Team Resource is organized into a series of modules that reflect specific topics relevant to the functioning of a planning team. Each module contains a topic overview, descriptions of key issues and challenges, a set of tips and considerations, and a list of tools and resources. The modules include the following:

Module 1	Leading the Team
Module 2	Assembling the Team
Module 3	Getting the Team Ready to Work
	Orienting the Team
	Preparing the Physical Workspace
	Preparing the Mental Workspace
Module 4	Building Trust and a Team Identity
	Building and Maintaining Trust
	Creating a Team Identity and Culture
Module 5	Engaging Problems as a Team
	Exploring and Learning as a Team
	Capturing and Recording Team Insights
Module 6	Managing the Team
	Managing Interpersonal Dynamics
	Managing Team Workflow and Productivity
Module 7	Communicating with Stakeholders

How to use the Team Resource. The Team Resource is designed to be used in several ways. For those who are getting ready to work on a planning team, or to lead one, the resource can be used as a primer by reading each section in sequence. Once familiar with its content, the resource can be used as a reference tool to re-visit for helpful hints, tools, and resources. For those who find themselves struggling with a particular challenge in their team, they can revisit sections relevant to that topic and refresh their thinking on some ways to approach the issue.

Access to Tools and Resources. This printable Team Resource research product is a supplement to the multimedia version of the Resource contained on the CD- ROM entitled *Making Sense of Complex Problems: A Resource for Teams*. There are a few differences between the content of the printable version and the CD-ROM version due to differences in functionality. For example, several tools and resources are accessible via the CD-ROM, but are not embedded in the printable version. A printable *Catalogue of Tools and Resources* is available on the CD-ROM and provides information about how to access each of the suggested tools and resources.

Module 1: Leading the Team

This module addresses the team leader's role in managing a team engaged in collective problem-framing and problem-solving activities. While each member of the team is responsible for how the team functions and the team's performance, the team leader has a distinct and critical role in these tasks.

Some of the areas in which the team leader is particularly important include:
- Working with the Commander to define the team's mission, establishing goals, and setting expectations.
- Working with the Commander to set the tone for open and honest discourse.
- Building and maintaining interpersonal trust and a sense of team cohesion.
- Managing personalities and associated team dynamics.
- Minimizing unproductive (interpersonal) conflict, while optimizing productive conflict.
- Organizing the work of the team.
- Managing the team's work pace and workflow.
- Encouraging and guiding team members in exchanging, discussing, and integrating information.
- Helping the team to avoid forming quick opinions that match the group consensus (i.e., groupthink) rather than critically evaluating information.
- Maintaining awareness of the organizational context in which the team is working, including the Commander's and other stakeholders' needs and preferences.

Although the activities, tips, and strategies described in this module are aimed at team leaders, it is suggested that team members and Commanders also review the material. Doing so provides a basis for discussion of the leader's role and function, and a shared sense of the challenges that team leaders often face.

Key Issues and Challenges

Establishing a collaborative and trusting environment. A significant challenge for team leaders and Commanders is establishing a collaborative and trusting environment in which team members feel safe arguing, questioning, thinking creatively, and sharing ideas openly. Individuals must set aside the behaviors that are often encouraged or required in military settings, and openly question and debate ideas with those who may be higher in rank. These behaviors can seem high-risk, uncomfortable, and even inappropriate to those who are accustomed to deferring to higher-ranking personnel within a hierarchical command structure.

Developing and/or expressing the creative thought of team members. A second challenge is that the military (and the U.S. educational system more broadly) has historically tended to dampen creative thought and label ideas as either good or bad, right or wrong. Individuals have become conditioned to tie their identity to the ideas they create and the esteem they get from being told they have the "right" answer. As a result, members of a planning team may refrain from thinking creatively or putting forth alternative ideas out of concern for being wrong or fear of being judged negatively by others. (See the TED talk video *How to Build Your Creative Confidence*, http://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence, for more on this topic).

Setting positive team climates. The Commander and team leader have critical roles in setting a positive climate. Despite rank, service, agency, or the background of team members, the Commander and team leader must create an atmosphere in which members are comfortable sharing ideas, thinking critically, questioning assumptions, and challenging ideas, without fear of rebuke. Senior leaders can do so by modeling these activities and being aware of how they respond to others' ideas and critiques. The Commander and team leader also need to consistently reinforce the view that an attack on an idea is not an attack on the person, and that the debate is for purposes of developing a deeper understanding. Creating such a positive climate requires a leadership style that emphasizes and encourages continual learning, creative and novel thought, and positively recognizes those who test ideas with one another.

Understanding the organizational context. In addition to leading internal team activities, the team leader plays a key role in activities external to the team. The planning team does not exist in a vacuum; rather the team exists within a particular organizational context that has a unique culture and set of norms for interacting and conducting business. The team also has customers - typically the Commander, in addition to other senior leaders, and sometimes external governmental organizations or allies - who are stakeholders (see Module 7: Communicating with Stakeholders) with specific needs and a vested interest in what the team learns and produces. As a team leader, it is important to maintain awareness of the organizational context in which the team functions and the team's role within that context. Tuning into the Commander's and stakeholders' needs, and how stakeholders perceive the team and its effectiveness, enables a team leader to help the team adjust the team's goals, timelines, and work products accordingly.

Tips and Things to Consider

The following is a set of practices and suggestions for **leading a planning team**, based on lessons learned from experienced team leaders.

Engage in self reflection. The team leader should reflect on the behaviors and characteristics he or she tends to exhibit as a leader, and whether those behaviors will work well for this team. There is no one right way to lead planning teams, but our data suggests that leaders who emphasize participation and who downplay the importance of hierarchy are more effective, and their teams are better able to engage in free- flowing dialogue. Most team leaders have probably taken a variety of leadership assessments throughout their careers in the military. It can be helpful to review and reflect on how that leadership style will function with the demands of leading a team engaged in complex problem-framing and problem-solving activities (see example assessment tools in the *Tools and Resources* section).

Seek feedback. Seek feedback from the team regarding one's leadership style and the specific practices and behaviors that best support the team's work. The team leader might choose to seek feedback from the full team or individually from team members. Informal conversation ("How am I doing? What can I do better?"), as well as more formal, structured dialogue, or written or computer-based formats all work well (see *Tools and Resources* for example ways to seek team feedback). Regardless of the feedback method chosen, eliciting feedback will serve a number of important purposes:
- It will show that the leader is open to the team's feedback and ideas for improvement.
- It will help to build trust within the team.[2]
- It can be a basis for reflecting on one's leadership practices and adjusting those practices to better support individual team members and the team as a whole.

Model what the team should do. One way to move the team toward collaborative problem solving is to model and demonstrate the desired team behaviors. Demonstrate critical thinking by questioning one's own personal assumptions. Encourage the team to challenge ideas by inviting them to question the leader's ideas and assumptions. Engage the team in exchange and discussion by soliciting ideas, repeating information, and seeking clarification from team members as they offer ideas.

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[2] This depends on the leader's response to the team's feedback; if the leader chooses to ignore it, the exercise of seeking feedback is likely to backfire and may damage the trust that has been built within the team.

Some team leaders find it helpful to have a **set of starter questions to seed the team's discussion** of an issue or problem set. Starter questions can help team members begin to voice ideas, expand their thinking, compare and contrast concepts, and critique ideas. Some example starter questions or phrases include the following:

- What do we know? What do we think we know? What do we need to know that we don't know right now?
- What are we missing? What factors are we not accounting for?
- Let's think about and discuss the strengths and limitations of this idea.
- What is the biggest question on your mind right now?
- Where does this idea fall short? Where is it most robust?
- Let's think about how this assumption may (or may not be) valid; then let's discuss.
- Help me understand your perspective better.
- What are the pros and cons for this idea/concept?
- Help me understand what I am missing. Where is my idea flawed?
- What are you puzzling most about right now?
- What connections or relationships are we missing?
- Everybody think of one drawback (or strength) of this idea/concept.
- How well does this model account for what we're trying to understand? What is it missing?
- Where might we expand our research and learning?
- We've characterized this (phenomenon) as a problem about (X).
    - Is this the right level?
    - Should we be looking at a higher level? A lower level?
- You've observed this (phenomenon). Why do you think it takes place?
    - What are its possible causes? I
    - If the relationships are not cause/effect, are they still worth thinking about as probable associations?

Adapt to fit the organizational culture. Team leaders should recognize that what might have worked for them when leading a team in another organizational context may not be the best fit for the team within the current organization. Consider and discuss with the team what they want and need from a team leader within this organizational context. Elicit the team members' views about what will (or will not) be accepted within the current organizational climate or mood of the organization. Work with the team to adapt one's leadership style, and the team's approach and work process accordingly.

Tools and Resources

This section provides a set of tools and resources that planning team leaders and members may find useful to supplement the topics covered in the *Leading the Team* module. The set of resources is not intended to be comprehensive; but it provides a starting point. It is organized around two primary areas: (1) Leadership Assessment Tools; and (2) Suggested Reading.

(1) Leadership Assessment Tools

Campbell Leadership Descriptor $
Description: Self-assessment designed to help individuals identify characteristics for successful leadership, recognize their strengths, and identify areas for improvement.
Access: http://www.ccl.org/leadership/assessments/CLDOverview.aspx

Leader Behavior Description Questionnaire (LBDQ)
Description: A questionnaire assessment used by team members to describe the behavior of a leader following observations of the leader in action.
Access: http://fisher.osu.edu/research/lbdq/

MSAF360 – The Army's Multi-Source Assessment and Feedback
Description: A 360° (i.e., multi-source) survey that provides individuals with feedback on their leadership strengths and areas for improvement.
Access: http://msaf.army.mil/LeadOn.aspx (CAC login required)

Multifactor Leadership Description Questionnaire (MLQ) $
Description: A questionnaire assessment that measures leadership types. Considered the benchmark measure of transformational leadership.
Access: http://www.mindgarden.com/products/mlqc.htm

Profiles of Organizational Influence Strategies (POIS) $
Description: An assessment tool that measures how people use influence within their organizations.
Access: http://www.mindgarden.com/products/pois.htm

SKILLSCOPE® Team Feedback Assessment $
Description: A 360° (multi-source) assessment checklist that provides individuals with feedback on job- related skills necessary for effectiveness in a leadership role.

(2) Suggested Reading

Title: ADRP 5-0. The operations process
Author: Headquarters, Department of the Army
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Art of design, student text, version 2.0
Author: School of Advanced Military Studies
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Dilemmas in a general theory of planning
Authors: H. Rittel and M. Webber

Title: Educating the reflective practitioner: Toward a new design for teaching and learning in the professions
Author: D. Schon
ISBN-10: 1555422209; ISBN-13: 978-1555422202

Title: The five dysfunctions of a team: A leadership fable
Author: P. Lencioni
ISBN-10: 0787960759; ISBN-13: 978-0787960759

Title: Groups that work (and those that don't): Creating conditions for effective teamwork.
Author: J. R. Hackman
ISBN-10: 1555421873; ISBN-13: 978-1555421878

Title: The leadership in action series: On leading in times of change
Author: S. Rush
ISBN-10: 1604911204; ISBN-13: 978-1604911206

Title: The reflective practitioner: How professionals think in action
Author: D. Schon
ISBN-10: 0465068782; ISBN-13: 978-0465068784

Title: The servant leader: How to build a creative team, develop great morale, and improve bottom-line performance
Author: J. Autry
ISBN-10: 1400054737; ISBN-13: 978-1400054732
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Strengths based leadership
Authors: T. Rath and B. Conchie
ISBN-10: 1595620257; ISBN-13: 978-1595620255

Module 2: Assembling the Team

One of the early tasks the Commander or team leader faces is to identify and bring together individuals who will serve on the planning team. In this module, we describe the issues and opportunities involved in assembling a planning or problem-solving team, and suggest some key tasks and strategies to consider at this stage.

In the early stages of the planning team's effort, Commanders and team leaders face the task of assembling the individuals who will comprise the group. Although, in some cases, Commanders and team leaders may have the opportunity to screen and select the team, interview participants described many instances in which this was not the case. Whatever senior leader's level of involvement in forming the team, leaders must figure out how to organize and begin to mesh a disparate collection of individuals into a well-functioning team.

To assemble a group of individuals into a high- functioning conceptual planning team, leaders must manage a number of challenges which include:
- Identifying how team members will be recruited and/or selected.
- Understanding the personality attributes, skills, knowledge, and problem-solving styles that can help or hinder the team problem solving process.
- Identifying/assessing the attributes and styles of candidate team members.
- Determining the optimal balance of skills, characteristics, and attributes that are needed for the team to function well.
- Determining the characteristics for which diversity among team members is best versus where consistency among team members is preferable.
- Identifying an optimal size for the team, given the scope of the problem and available resources.

In the sections that follow we discuss these challenges, and the strategies and approaches team leaders have found useful in the initial phases of forming a team.

Key Issues and Challenges

     Determining the expertise and skills needed. A key aspect of assembling the team is considering what knowledge, skills, abilities (KSAs), work styles, and personality characteristics are needed for the team's task. One of the challenges for Commanders and team leaders is the nature of the problems they confront. Because the problems being addressed are complex and unfamiliar, identifying the expertise and skill sets that are optimal for the team can be difficult. Despite this challenge, experienced team leaders and team members described definite preferences regarding team composition. Some of the characteristics and styles that individuals bring to the team are truly essential for complex problem-solving teamwork. Other characteristics and styles are considered "nice to have" but not crucial, while other personality attributes and work styles can make it more difficult for the team to do its work. Figuring out the skills, talents, experiences, working styles, and personality attributes the team has available to draw on is an important initial phase of working together. It is also important for the team leader to identify personality styles that may not mesh well, or might hinder collaboration, so that the leader can begin managing those potential issues (see Module 6: Managing the Team).

     Diversity vs. uniformity of team members. Many of the experienced team leaders we interviewed identified diversity as a critical attribute of military planning teams. Teams comprised of people with widely varying backgrounds, experiences, and work styles are seen as having a greater variety of perspectives to draw on for their work. Teams that are more diverse are also believed to be more creative, to see a wider range of possibilities in the problem-solving and planning process, and to develop more innovative solutions.

     However, team leaders noted it can be difficult to find individuals with a significant degree of diversity. Military planning teams are primarily comprised of career military personnel whose values, language, and perspectives are largely shared, and whose backgrounds, education, and deployment histories may be remarkably similar. It can be difficult to find individuals who have considerably different paradigms or ways of thinking and viewing the world.

     In addition, diversity within a team can be somewhat of a "double-edge sword." While diversity can offer several benefits, teams with a considerable amount of diversity may suffer from a lack of team cohesion, may experience coordination challenges, and may take longer to develop products. While experienced team leaders seek diversity within their teams, diversity was not sought after on every dimension. Interviewees also described a set of attributes that they prefer every team member to possess. These dimensions are described in the *Tips and Things to Consider* section.

     Recruiting or selecting team members. Interview participants indicated that although the team leader may have a significant say in who ends up on the team, in many cases the team leader may have very little input. Moreover, having decision authority over who serves on the team is not the only means to putting together a high-functioning team. Team leaders described planning teams whose members had come to the planning effort in a variety of ways. Members may be recruited by the team leader or Commander; team members may apply to be part of the team through some formal selection process; members may hear about a problem-solving effort informally (e.g., group "FYI" emails or word of mouth) and volunteer to be part of the team; or, members may be selected by someone else in the command structure who nominates or assigns them to the team. (See three examples in the box below.)

Example 1.
In one example, co-leaders of a design team developed a set of criteria that reflected the characteristics and skills they considered important for a successful design team. The co-leaders used the criteria to then create a selection process that included assessment instruments, interviews, and a writing assignment to mirror those characteristics and skills. Candidates were evaluated in terms of that set of criteria, and in a second planning effort the co-leaders refined the criteria and selection process further. The co-leads saw the selection process they had developed as critical to the high quality of the team's process and work products.

Example 2.
In another example, a Commander notified Directors in selected areas that they needed to identify one person to be assigned to a six-month problem-solving effort. Informally, the Commander conveyed his criteria: "Candidates for the team need to be some of your smartest, most capable people. If it doesn't hurt to lose them for an extended period, you're sending the wrong person." This distributed selection process also worked well, and both the Commander and team leader were pleased and impressed with the high quality personnel assigned to the team.

Example 3.
In this example, team members were selected by a Commander and assigned to the team in accord with his notions of what the team would need to function well. The Commander knew the individuals and their capabilities and selected them accordingly.

In all three examples, the teams provided important and valued products to their Commanders, and their team efforts were considered successful. As demonstrated by the three examples, rather than there being a particular best practice for creating a planning or problem-solving team, what seems to matter is how the team leader works with the people who come to the team (see Module 6: Managing the Team), however that happens.

Whatever the process is that brings individuals onto the team, it is the team leader's job to figure out how to begin to mesh the group of individuals into a functional work team. Doing so requires identifying the prospective team members and the strengths and weaknesses of each member, so the team leader can provide effective support as the individual members begin to develop into a team (see Module 4: Building Trust and a Team Identity). Team leaders described a number of formal and informal assessment strategies for gaining an initial understanding of individual members, and of the overall team configuration. In some cases these assessment strategies are used as part of the recruitment and selection process; in other cases the assessment strategies are used once the team is already established (the assessment strategies are described in *Tips and Things to Consider* section).

Determining team size. Team size is an additional consideration when assembling the team. The individuals we interviewed suggested that there is no right size for a planning team and the team's size often changes over the team's lifecycle and planning process. We learned about teams that varied in size from 3 to 25 people. Teams of 5 to 9 persons were typical, and larger teams often managed their work by dividing into smaller sub-teams to complete certain tasks (e.g., independent research) and then reconvening for discourse. Larger teams may offer a larger pool of intellectual assets upon which to draw, but larger teams also require more resources including larger workspaces. Larger teams also incur significant coordination costs, including the time and resources involved in sharing information and insights across a large team and keeping sub-teams in sync (See *Managing the Team's Workflow and Productivity* in Module 6).

Tips and Things to Consider

        Consider the following tips and strategies **when assembling a planning team**.

        Understand the benefits and shortcomings of diversity. Recognize both the advantages and disadvantages associated with team member diversity. For example, more diverse teams have a wider range of perspectives on which to draw, but may experience more conflict (both task and interpersonal conflict) and higher coordination needs, and may take longer to arrive at a final product.

        Strive for variety on certain dimensions. Teams comprised of people with widely varying backgrounds and experiences will have a greater range of perspectives to draw on for their work. Teams that are more diverse will likely also be more creative, engage in higher-quality discourse, and develop more innovative solutions.

Strive to **assemble a team with a _variety_ of certain dimensions** such as:
- Backgrounds, education, training, credentials/qualifications, ranks,[3] work experiences.
- Assignments, deployments, career histories.
- Functional areas of expertise (e.g., planner, intelligence, logistics, special ops).
- Genders.
- Personality characteristics (e.g., Myers-Briggs Type Indicator® [MBTI®] types).[4]
- Approaches to solving problems.
- Thinking styles and preferences - e.g., big picture thinkers, detailed thinkers, abstract thinkers, historical thinkers, those who can think forward in time, and those who are metacognitive thinkers, and can reflect and comment on how the team is thinking about a particular topic.

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[3] Too wide a dispersion of rank may mean that junior-level members may not have the breadth of experience to draw on, and may defer to high-ranking members.

[4] Although personality characteristics were identified as a component where variability within the team is desirable, team leaders and members also described certain personality attributes that are simply not helpful on conceptual planning teams. For example, individuals with high needs for control, who are unable to tolerate points of view different from their own, and who are unable to manage uncertainty and ambiguity, who demand to be the center of attention can be seriously disruptive and/or unable to perform well in conceptual planning teams.

Strive for consistency on other dimensions. Although there are some ways in which variety among team members is best, there are certain aspects of personality and work styles that are desirable for all members of the team to have, if possible.

Strive to **assemble team members who demonstrate *consistency* on certain dimensions** such as those who are:
- Eager to learn, naturally curious, and enjoy learning for learning's sake.
- Task-oriented, with a strong work ethic.
- Avid readers, able to digest and synthesize large amounts of information.
- Efficient, effective writers; able to communicate ideas verbally and in text.
- Able to think deeply and in a sustained way about a topic.
- Open-minded and adaptable; willing to consider points of view that differ from their own.
- Disciplined, critical thinkers, adept at following a line of reasoning and evaluating it for its value, efficacy, and relevance.
- Ability to work well with others, to listen, communicate, and influence others.
- Able to break complex ideas into simple words and phrases.
- Willing to speak up, to share their thinking and point of view with the team, and to work collaboratively.
- Unafraid of having their ideas critiqued by others on the team.
- Able to accept a less-than-perfect solution.
- Comfortable with ambiguity.
- Able to think visually; to communicate ideas visually; and to create effective graphics.
- Aware of how the sponsoring organization thinks, and its typical approach to problems.

Consider using selection tools and approaches. When the opportunity exists to select who is on the planning team, consider using methods for assessing an individual's relevant skills and characteristics. If selecting team members is not a possibility, consider using methods for assessing characteristics of the team members you have once the team is in place.

There are many assessment tools and procedures available to help understand the strengths and weaknesses of the team members. Some practices that planning teams have used include:

Example	Description
Inventories for identifying talents, work style and interaction preferences, and aspects of personality	Some examples of inventories that teams have found useful include the Myers-Briggs Type Indicator®, Clifton StrengthsFinder, the Kirton Adaption-Innovation Inventory, the Strategic Thinking Questionnaire, and The Cognitive-Style Inventory (see *Tools and Resources* for references).
Writing samples and other examples of work products	These products can provide an initial look at individual communication styles and proficiencies.
Structured or informal interviews	By the mid-career level that is typical for personnel entering on these teams, people usually know their strengths and workstyles and can describe them fairly accurately through use of specific examples.

Recognize that there is no right size for a planning team. There are advantages and disadvantages related to a team's size. For example, larger teams may benefit from having more perspectives on which to draw, but may incur larger coordination costs. Smaller teams may experience more efficient coordination and increased cohesiveness but due to the smaller number of team members may yield fewer unique perspectives.

Tools and Resources

This section provides additional material that planning team leaders and members may find useful to augment the topics covered in the *Assembling the Team* module. It is organized around two topics: (1) Assessment Tools; and (2) Suggested Reading.

(1) Assessment Tools
(Note: We are not making any claims about the scientific validity and/or reliability of these tools. They are tools that planning teams have found helpful for practical use.)

Clifton StrengthsFinder
Description: Assessment test to uncover one's personal strengths.
Access: https://www.gallupstrengthscenter.com/

The Cognitive-Style Inventory
Description: Assessment to identify cognitive styles and help to anticipate benefits and drawbacks for each.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Kirton Adaptation-Innovation Inventory
Description: Assessment to measure creativity and problem solving style.
Access: http://www.kaicentre.com/

MBTI®Complete
Description: Online MBTI® tool that does not require a certified individual.
Access: https://www.mbticomplete.com/en/index.aspx

Myers-Briggs Type Indicator® (MBTI®)
Description: Questionnaire to measure psychological "types" – i.e., how one perceives the world and makes decisions.
Access: http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

Strategic Thinking Questionnaire
Description: Assessment to measure strategic thinking skills. Measures systems thinking, reflection, and reframing.
Access: http://thestrategicleader.org/content/take-stq

Team Architect® Sort Cards
Description: Diagnostic tool to determine the gap between team success factors and current team skill levels and assess team effectiveness.
Access:
http://store.lominger.com/store/lominger/en_US/pd/ThemeID.2815600/productID.168672200

(2) Suggested Reading

Title: Creating effective teams: A guide for members and leaders
Author: S. Wheelan
ISBN-10: 1452217076; ISBN-13: 978-1452217079

Title: Size matters: How big should a military design team be?, SAMS monograph
Author: MAJ Michael L. Hammerstrom (U. S. Army)
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: StrengthsFinder 2.0
Author: T. Rath
ISBN-10: 9781595620156; ISBN-13: 978-1595620156

Module 3: Getting the Team Ready to Work

This module addresses getting the team ready to work. Getting the team ready for its work involves:
- orienting the team,
- preparing the physical workspace, and
- preparing the mental workspace.

Getting the team ready involves orienting team members to project goals and the team's objectives. Getting ready also involves figuring out how the team will work together and the work processes that the team will adopt.

Another aspect of preparation involves lining up resources and tools, and configuring the team's physical workspace. Finally, getting the team ready to work entails helping team members loosen up their thinking and preparing their "mental workspace" for conceptual planning.

Orienting the Team

       The Commander and the team leader have important roles in orienting the team to their task. Senior leaders can start with an explicit, clear statement about both the WHAT and the HOW of the team's work. That is:

- What are the team's objectives?
- How is the team going to accomplish those objectives?
- What products are going to be delivered by the team?
- What processes will the team use to accomplish their objectives?

Key Issues and Challenges

       Provide loose direction for the team's work. There are several factors that may make orienting the team challenging. One is that the team leader needs to provide the team with some direction about how to make sense of the problem and engage in problem solving activities without defining or prescribing a set of processes the team should follow. The difference is between providing guidance vs. providing rules. While it is important to avoid dictating what the process should be, the team needs some awareness of how the team's activities are likely to unfold. Another challenge when orienting the team is understanding that there are a variety of practical considerations that may impinge on the team's work. For example, the team needs to produce something within certain deadlines. Work will have to be completed with time, personnel, materials, equipment, and information constraints.

       Develop meaningful products. Furthermore, what the team ultimately produces has to be useful to people outside the team. It is not enough for the product to make sense to the team members. The product has to have value and utility to key stakeholders (e.g., the Commander and other senior leaders). It is important to balance the team's recognition of these constraints against the team's needs for space and time to think deeply about the problem they are there to address.

       Use meaningful terminology for the team's work. Finally, there is the challenge of figuring out what terminology to use to describe the team's activity. There has been considerable debate within the Army and across the Services about design and/or Army Design Methodology (ADM). ADM is "a methodology for applying critical and creative thinking to understand, visualize, and describe problems and approaches to solving them" (ADRP 5-0, pp. 2-4), and was recently incorporated into Army doctrine. For a variety of reasons (some well-founded, some perhaps not), many members of the Army and Joint Services have negative impressions of ADM as elitist and/or simply confusing. For this reason, using the terms design or Army Design Methodology may have an unintended consequence and may create resistance among some team members and potentially among external stakeholders.

Tips and Things to Consider

The following sets of strategies are practices that team leaders may want to consider in order to **set team expectations and orient the team to its task.**

Consider using alternative labels for the activity. While some refer to the activity as design or Army Design Methodology (the doctrinal terms), leaders of planning teams in operational contexts have framed their teams' activities using a variety of expressions, including:

- Conceptual planning
- Problem definition
- Complex problem solving
- Framing activity/framing session
- Getting our arms around the problem
- Visioning
- Thinking critically and creatively
- Concept development
- Framework creation
- Big picture thinking
- Problem framing
- Collective sensemaking
- Questioning fundamental assumptions

Clearly articulate the team's objective(s). The team's task is an ambiguous one; there will be an abundance of uncertainty to manage. Providing the team with a general sense of the team's goal can help the team manage the uncertainty it will be facing in the activity itself. Some of the ways team leaders have expressed the team's goal include:

- To learn about [fill in the blank].
- To provide senior leadership with different lenses for viewing a problem or situation.
- To answer "What are we going to do about [insert region]? Or, How did [insert] happen?"
- To provide the Commander with "alternative realities" that he can use to examine the operational environment.
- To orient the Commander to the environment…to provide the team's assessment of environment…and the team's recommendations in order to allow him to move to a decision more quickly.

Develop a team charter. Consider developing a "team charter" to capture the team's goals and to promote shared understanding between the Commander and the team. The charter can serve as a common-grounding mechanism between the Commander and the team.

A 'start-up' team charter can include the following elements:	
Element	**Description**
Background	History that created the need for the team; condition or situation requiring attention; current trends that affect or will affect the situation
Project statement	Succinct, operationally worded outline of what the effort is intended to achieve
Goals	General intent; existing goals to be supported
Resources	Physical resources to be employed; human resources that can be called upon
Schedule	Schedule for the team effort, including phases, milestones, and gateways (i.e., go/no-go reviews by the Commander)
Methodology	Planning processes, methods or tools to be used
Issues	Starter set of issue topics expected to be important to the effort; questions for consideration for each topic

Consider providing a process outline. Unless everyone on the team has been trained in a specific conceptual planning methodology, there will likely be a lot of wheel spinning in getting started. While the team leader will want to avoid providing too much structure, there can be significant value in providing the team with a general process they can expect to follow.

Describe the "anti-goals" and what the activity is NOT. Consider differentiating the activity the team will be doing from traditional methods of planning and problem solving. While some members of the team may have been exposed to (or trained in) non-linear approaches to problem-framing and problem-solving, it is likely that there are team members who are more accustomed to using analytic tools and procedures such as Troop Leading Procedures (TLP), the Military Decision-Making Process (MDMP), and the Joint Operation Planning Process (JOPP). Consider contrasting the team's task with planning approaches that are more analytic and linear in nature. Help the team to understand that this activity is not MDMP, JOPP, or TLP. Rather, the activity is intentionally a different way of thinking about the problem space.

Provide examples of other complex problems or situations. Team leaders or members can offer examples of other complex problems that different planning teams have been asked to tackle using holistic, non-linear approaches. For example, problems other teams have sought to make sense of and determine actions for include:
- How do we effectively draw down troops in Afghanistan in a way that preserves security of our forces and the nation's citizens?
- How can we get water and other supplies into Haiti after the Earthquake has damaged the country's infrastructure?
- How do we transition from a military-led mission to a civilian-led mission in Iraq?

Provide a reading list. The reading list should expose the team to key practices, work processes, and problem- solving approaches that are to be encouraged within the team. Some topics might include holistic/integrative thinking, critical thinking, nonlinear and creative thinking, reflective practice, and design thinking (See Suggested Reading in *Tools and Resources*).

Define team member roles. Help team members define and understand their own and others' roles in the team. Team roles and functions can be explored through exercises, or by asking team members to reflect on these questions: How do you view your role on the team? What skills or experiences do you bring to that role? Each team member can share his/her view, and then discuss how their responses align with how the team leader and other team members view their role.

Develop ground rules for team interaction and discourse. Work together as a team to develop a set of ground rules. Document and post the team's ground rules as a reminder to the group. Everyone on the team should be able to nominate new ground rules for inclusion or to remind one another of established ground rules.

Example **discourse ground rules** include:
- Actively listen – respect others when they are talking.
- Do not use electronic devices during discourse sessions; each team member needs to be fully present.
- Leave the room for necessary side bar conversations.
- Speak from your own experience instead of generalizing
  - (e.g., use "I" instead of "they," "we," and "you").
- Allow others to complete their thoughts before offering your own.
- Practice timely attendance.
- Attack ideas, not people.
- Recognize that each idea has some good/useful aspects to it. Acknowledge the good parts and build on them.

Help the team prepare for likely challenges. Prepare the team for the challenges they are likely to experience in the course of working together in the planning process. Explain that it is not unusual for teams to experience periods of significant ambiguity and confusion. One team leader described these periods as "the dark night of the soul" or "the muddy ditch" that all conceptual planning teams experience at some point. He added that he reminds his teams that confusion can be informative and a sign of progress and that confusion can provide motivation for additional learning.

Some of the strategies team leaders have used to prepare their team for the probable moments of confusion and frustration include:

- Providing images or illustrations that depict ambiguity, confusion, or the "fuzzy front end" of problem definition while describing the activity the team is undertaking.
- Telling the team to expect confusion. Describe the confusion and disorientation that can occur when working on complex, unfamiliar problems. Let the team know there will be times when their understanding of the problem seems to fall apart, and when members feel as though they are making little progress. Also, note that these confusing moments can be an exciting time where significant learning happens and novel insights are achieved. Setting this expectation can help prepare team members and provide reassurance when team members find themselves in that "muddy ditch."
- Presenting examples and analogies. For example, one strategic-level team leader described the following analogy of a house that he often used with his teams.

> When we set out to build a dream house, we think about how and what we want it to include, where it will be, and so forth. Then plans are rendered, we begin to envision what it's going to look like, begin to budget, and build a timeline. Then we break ground. For a short time, our dream home is a muddy ditch in the ground. There is no escaping the fact that for a period of time, the project is a muddy ditch. The muddy ditch is a sign of progress, not a sign of failure. It means we're going in the right direction. Every project reaches that phase of the muddy ditch - seems like we're confused, we're overwhelmed. We need to understand that the next step will be to clarify things. There's a leap of faith involved there. (U.S. Army LTC)

- Showing a video that depicts the iterative - and often frustrating - nature of defining and solving problems. The video analogy can reflect a different domain and problem set; the important part is that it should illustrate the iterative nature of framing and solving problems as a team, including identifying the need for external SMEs at various points throughout the problem-solving process. For example, see the How to Change Cars Forever video at https://www.youtube.com/watch?v=gogQLQNrDds.

Preparing the Physical Workspace

Part of getting the team ready to explore the problem together requires **setting up the physical environment**. The physical space and the materials within it have the potential to either dampen or spark creativity, foster discourse, and facilitate visual thinking.

Key Issues and Challenges

There are a variety of real-world constraints that can impact access to materials and resources. For example, while some teams may have the luxury of choosing the space in which the team may work, some will simply have to work with the space they are given.

But even in situations where the team does NOT have a say in the actual space they use, there are things the team can do to make the configuration and other characteristics of the space more conducive to teamwork, learning, collective sensemaking and complex problem solving as a team.

Tips and Things to Consider
The following are some strategies to be considered **when preparing the physical workspace**.

Articulate what the space should do for the team. Reflect on the goals and activities the workspace will need to support. Being explicit about the goals can make it easier to create a space that is conducive to achieving the team's objectives. Teams who have worked on complex problems have described needing space that supports a combination of goals, such as:
- Independent time for research and quiet reflection.
- Group time for discussion and sharing ideas.
- Space for visualization – both individually and collectively − and access to shared content (e.g., whiteboards, wall space).
- Space for making a mess, using materials such as post-its, images, collages, and sketchpads.
- Reconfigurable space to support different team modes and activities.
- Space (and seating configurations) for discussion − such as a horseshoe or circular configuration.

Use these goals as a way to guide discussions and decisions about the team's space, and to consider trade-offs if the team has various space options.

Gather basic materials. Gather the basic materials the team will need to support the team goals. Planning teams have found it useful to have materials such as:
- Whiteboards (multiple boards, if possible)
- Wall space where materials can be posted
- Pens, pencils, and dry-erase markers of multiple colors
- Tangible working materials – such as a set of images, shapes, connectors, words, arrows (see "Tools and Resources" for example kit)
- Butcher block paper
- Sticky tack or tape
- Post-its
- Sketchpads
- Notebooks
- Camera
- Laptop(s)
- Furniture that can be easily rearranged
- Round tables
- Comfortable chairs
- Projector(s)

Preparing the Mental Workspace

For planning teams to see important connections and influences and to articulate key nuances of the problem set they are addressing may require team members to think and explore the problem in ways that may not be familiar. Making sense of the problem is going to require many team members to adapt their typical ways of thinking, and to think critically, creatively, holistically, reflectively, visually, and from multiple perspectives. In the same way that an athlete warms up before starting an intense workout, it can be helpful to loosen up the minds of the team before the members engage in different ways of thinking about the problem set. In this section, we provide tips and strategies that can help prime the team members, enhance their awareness of how they typically think and help bolster member's cognitive flexibility.

Key Issues and Challenges

The influence of military culture. Based on our interviews, preparing the mental workspace is challenging because the military culture generally encourages its members to use highly analytic processes to plan and solve problems. While linear, analytic, and highly structured modes of thinking are exactly what is needed for many problems, these methods are not so effective for making sense of highly complex or unfamiliar problem sets. That means that the cognitive tools that many planners bring to solving complex problems are often not best suited for the task.

Understanding one's own thinking. A related challenge for team members is for them to understand how they typically think, what perspectives and biases they bring, and how they usually solve problems. For some team members, awareness of one's own mental workspace (known as metacognition) may be second nature. But for many individuals, metacognitive awareness may be new and possibly uncomfortable. Many individuals can get stuck in their own worldviews and paradigms, and have difficulty breaking away from their own perspective and looking at problems from a different viewpoint. Metacognitive reflection - thinking about one's own thinking- is a skill that requires practice and team members may need help getting started.

Openness of team members to differences. An additional challenge to preparing the team's mental workspace is the presence of team members who are unwilling (or possibly unable) to open their minds to other perspectives, opinions, ways of thinking, work processes, ideas, and recommendations. To optimize the team's interaction and collective problem solving, it is essential that team members offer respect for and consideration of others' ideas and contributions, and be open to at least exploring different views and ways of thinking. The team leader has a central role in developing a collaborative trusting environment and does so by both modeling these behaviors, and by reinforcing these behaviors in the team (see Module 6: Managing the Team).

Tips and Things to Consider

There are a variety of factors and strategies to consider **when preparing the team's mental workspace**. Note that some of these strategies may seem counterintuitive, especially to an organization such as the Army that values efficient process and structure.

Fostering cognitive flexibility. Recognize the role of team composition in fostering cognitive flexibility. Diverse teams that include differences in perspectives and knowledge can stimulate higher levels of team creativity and increase the likelihood that new connections and insights will occur (see Module 2: Assembling the Team).

Consider providing warm-up activities before starting the problem framing effort. These activities should challenge team members to think in different ways. These warm-ups might include activities such as exercises in visual thinking that are very different from what team members might be accustomed to doing (see Module 5: Engaging the Problem). Every team meeting can start with a different warm-up exercise. The exercises can be short and get increasingly challenging over time.

Some example **warm-up exercises** include:
- Providing a set of visual images (photographs, graphical images) and having team members select 1 to 2 images that represent the team's mission. After putting all images up on the wall, have each team member describe his/her selection, and how it corresponds to the team's goals.
- Asking the team to create a picture "that interprets x." "X" can be a phenomenon, activity, or attitude of the leader's choosing. The idea is for the team members to consider and capture the "essence" of something in a visual representation.
- Selecting an image (painting, sculpture, abstract art, or graphic) and asking the team to spend 5 minutes examining the image. Ask the team to describe what they see depicted in the image and how the image relates to the problem the team is tasked with solving. Discuss as a group.
- Asking the team to take 10-15 minutes to create an initial sketch/graphic of their view of the problem; post these sketches around the room and allow the team to examine one another's work. Then ask each team member to talk briefly about their sketch.
- Showing a video such as Elad Segev's TedX Talk, *When there is a correct answer: Exercise in creative thinking,* http://www.youtube.com/watch?v=9TskeE43Q1M).

These activities can prime the team members, loosen up their "mental muscles," and begin to move them into a different mindset. The activities can also provide important practice at getting to the essence of something (i.e., to the heart of what matters) – and to begin discussing as a team what is important and what is not in problem-solving activity. Finally, the activities also provide an initial team-building experience and way for team members to begin to know how each member of the team thinks and communicates.

Aid team members "think about thinking". Become attuned to how team members tend to think and approach problems. Help the team members "think about thinking" so that they begin to reflect on and become more aware of the perspectives and worldviews they bring to the team. One approach is to use some of the many tools and inventories that assess aspects of cognitive style, preferences for learning and information processing, personality type, and interaction style. Some examples that many members of the military are familiar with include the Strategic Thinking Questionnaire and Clifton StrengthsFinder (See *Tools and Resources* for their references), but there are others that can provide interesting insights about individual and team profiles.

Use of information from inventories and assessment tools. Carefully consider how to use any information available from inventories and assessment tools. Team leaders might simply make the assessments available to team members for the members' own self-knowledge and reflection. Or, the leader might ask members to share what they learned about their styles with the rest of the group. Another option is to present a "team profile" based on findings, without necessarily identifying individual's scores or findings. The point is, the more individual team members (and the team as a whole) understand their own preferences and inclinations, the more likely members are to recognize the advantages and constraints of their typical approach to working with others and to solving problems.

Foster creativity. Help team members become more aware of (and more confident in) their own abilities to innovate and be creative. This can be particularly important for team members who are resistant to different ways of thinking and exploring problems because they believe they are not creative. Consider engaging in an "Everyday creativity" exercise that helps individuals explore how they are creative in their everyday lives – whether it be in the way they cook, the way they organize their garage, or the way they landscape their home. This will help each team member become more aware of how and where they are creative, and recognize that creativity manifests in a variety of different ways. And that creativity can be pulled into their problem solving task as well (See the Everyday creativity exercise in *Tools and Resources*).

Or, consider showing David Kelley's Ted Talk, *How to build your creative confidence,* (http://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence) to help team members to understand their creative abilities.

Tools and Resources

This section provides a set of tools and resources that planning teams may find helpful for preparing the team to work together and for doing the work itself. The tools and resources are organized around the following topic areas: (1) Exercises to Prepare the Team to Work Together, (2) Exercises and Videos for Preparing the Mental Workspace, (3) Assessment Tools; and (4) Suggested Reading.

(1) Exercises to Prepare the Team to Work Together

Background exploration exercise (storytelling)
Description: Allows team members to better understand what each individual brings to the team by sharing personal experiences and backgrounds with the team.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Broken squares exercise
Description: Gives insight into how each individual team member tends to look at situations and solve problems.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Engaging everyone – Liberating structures
Description: A handbook containing a range of exercises including ice breakers, physical space suggestions, creative thinking techniques, question asking techniques, and approaches for improving interpersonal and team communication.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.groupjazz.com

Team charter (editable - template)
Description: An approach to facilitate the development of team identity, mission, roles, purpose, etc.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Team role experience and orientation (TREO); TREO survey
Description: A teamwork style survey developed by the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). Designed to help teams and team members examine their preferences and how they typically work in a team.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

(2) Exercises and Videos for Preparing the Mental Workspace

David Kelley: How to build your creative confidence
Description: TED talk by David Kelley – President of IDEO. He argues that creativity is not for a chosen few; everyone has creative potential.
Access:
http://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence.html

Everyday creativity exercise
Description: Exercise to help team members recognize where and how their creativity is being expressed in everyday life, so they can then apply that way of thinking and being to their work.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Tales of creativity and play
Description: TED talk by designer and IDEO CEO, Tim Brown. He describes the relationship between creative thinking and play.
Access: Available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.ted.com/talks/lang/en/tim_brown_on_creativity_and_play.html

Visual Explorer exercise
Description: This exercise helps to promote collective inquiry, meaning making, and creative conversations, through the use of images.
Access: http://www.innovationmanagement.se/imtool-articles/well-designed-visual-explorer-tool-enables- creative-dialogue-and-collaboration/

Visual Explorer images
Description: Images are available for purchase through The Center for Creative Leadership website useful for a variety of creative thinking exercises.
Access: http://visualexplorer.smugmug.com/VE/Visual-Explorer8482 image/3258227_G6sM8L#!i=180428761&k= SqCGZpP

When there is a correct answer - Exercise in creative thinking
Description: Believing that there is a correct answer can dampen creativity. Video shows an experiment with third grade students.
Access: Available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.youtube.com/watch?v=9TskeE43Q1M

(3) Assessment Tools

(Note: We are not making any claims about the scientific validity and/or reliability of these tools. They are tools that planning teams have found helpful for practical use.)

Clifton StrengthsFinder
Description: Assessment test to uncover one's personal strengths.
Access: https://www.gallupstrengthscenter.com/

The Cognitive-Style Inventory
Description: Assessment to identify cognitive styles and help to anticipate benefits and drawbacks for each.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Kirton Adaptation-Innovation Inventory
Description: Assessment to measure creativity and problem solving style.
Access: http://www.kaicentre.com/

MBTI®Complete
Description: Online version of MBTI that does not require a certified individual to conduct the assessment)
Access: https://www.mbticomplete.com/en/index.aspx

Myers-Briggs Type Indicator® (MBTI®)
Description: Questionnaire to measure psychological "types" – i.e., how individuals perceive the world and makes decisions.
Access: http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

Strategic Thinking Questionnaire
Description: Assessment to measure strategic thinking skills. Measures systems thinking, reflection, and reframing.
Access: http://thestrategicleader.org/content/take-stq

(4) Suggested Reading

Title: The art of design: A design methodology
Authors: S. Banach and A. Ryan
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Integrated planning: The operations process, design, and the military decision making process
Authors: W. Grigsby, S. Gorman, J. Marr, J. McLamb, M. Stewart, and P. Schifferle
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: The leader's edge: Six creative competencies for navigating complex challenges
Authors: C. Palus and D. M. Horth
ISBN-10: 0787909998; ISBN-13: 978-0787909994

Title: Make space: How to set the stage for creative collaboration
Authors: S. Doorley, S. Witthoft, H. Plattner, and D. Kelley
ISBN-10: 1118143728; ISBN-13: 978-1118143728

Title: Making space for creativity
Source: University of Brighton
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Simply complexity: A clear guide to complexity theory
Author: N. Johnson
ISBN-10: 1851686304; ISBN-13: 978-1851686308

Title: Structured Planning: Advanced planning for business, institutions, and government
Author: C. Owen
Access: Available free of charge at http://www.scribd.com/doc/86148792/Structured-Planning-Textbook

Title: A systemic concept for operational design
Author: J. Schmitt
Access: PDF available on CD-ROM, *Making sense of complex problems: A resource for teams*

Title: Systemic operational design: Learning and adapting in complex missions
Author: H. Wass de Czege
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: The ten faces of innovation: IDEO's strategies for defeating the devil's advocate and driving creativity throughout your organization
Authors: T. Kelley and J. Littman
ISBN-10: 0385512074; ISBN-13: 978-0385512077

Title: Thinking in systems: A primer
Author: D. Meadow
ISBN-10: 1603580557; ISBN-13: 978-1603580557

Title: Wicked problems and social complexity
Author: J. Conklin
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Wish I worked there!: A look inside the most creative spaces in business
Authors: K. Groves, W. Knight and E. Denison
ISBN-10: 0470713836; ISBN-13: 978-0470713839

Module 4: Building Trust and a Team Identity

Two foundational activities for effective teamwork include establishing trust and creating a team identity. This module addresses challenges to building trust and the importance of creating an atmosphere in which critical thinking and honest discourse are accepted norms.

This module also describes the value of creating a shared team identity, which includes addressing questions such as:
- What is the team's purpose?
- What are the team's core values?
- How will team members interact with one another?
- What value does the team provide to the larger organization?

The challenges involved in establishing each of these aspects of team identity are discussed and tips and strategies are offered for building trust and creating a strong team identity for the planning team.

Building and Maintaining Trust

"No quality or characteristic is more important [than trust]"[5]

While trust is vital in any team, the importance of trust is amplified in teams in which people are expected to think creatively, share information openly, and engage in honest dialogue. Productive discourse hinges on the trust shared between team members. Team members need to believe they can share their ideas and viewpoints, and freely critique others without fear of reprimand or concern for making mistakes. To do so means creating a climate that fosters a sense of psychological safety for team members.

The Commander and team leader have key roles in building and maintaining a climate of trust. These senior leaders can set the conditions for trust by creating an environment that is safe for critical thought and discourse. The Commander and team leader also have the capacity to dampen and jeopardize trust, though perhaps unintentionally. But the responsibility for making the team work and play well together does not reside only with the Commander or team leader. Everyone on the team is responsible for how the team functions, including the building of trust relationships. Establishing the notion that everyone on the team is responsible for the team is a key aspect of creating a productive, trusting environment for teamwork.

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[5] Lencioni, P. (2005). Overcoming the five dysfunctions of a Team: A field guide. (p. 13). San Francisco, CA: Wiley.

Key Issues and Challenges

  The influence of military culture. An obstacle to promoting a positive climate that encourages discourse is the military culture itself. Military personnel have been conditioned to conform to the military's hierarchical command structure—to follow orders and to expect orders to be followed. The military's culture has evolved in this way for good reason, and has served the military and our country well. But it has its costs. If the planning team operates using standard military modes of interaction, members of the team who are more junior may feel a degree of risk and discomfort in actively questioning assumptions and prevailing perspectives of those in higher ranks.

  Interactions necessary to develop trust. An additional obstacle is the time and opportunities for interaction that building trust requires. In certain circumstances individuals may be working with team members whom they already know and trust. But in other cases individuals will likely be working with team members for the first time. Having the necessary time and shared experiences for building trust can be particularly challenging when the team is operating under time constraints with limited opportunity to develop relationships. This is often the case with ad-hoc teams who convene quickly for purposes of crisis response. Fortunately, there are ways to accelerate the development of trust. We describe some tips and strategies for doing so in the next section.

  Inclusion of subject matter experts into the team. Finally, incorporating external subject matter experts (SMEs) into the team can create challenges to building and maintaining trust within the team. The team may choose to involve individuals who have important expertise relevant to the problem set. These SMEs may come from military or non-military organizations and agencies with differing agendas, organizational cultures, views of the military, and norms for interacting and conducting business. All of these differences have the potential to create challenges to trust-development and information-sharing within the team (see Module 6: Managing the Team).

Tips and Things to Consider

The following tips and strategies used by planning team leaders and members can help to build and maintain trust within the team.

Engage in trust and team building activities. Consider engaging in trust- and team-building activities at the outset of the team interaction. Planning teams have used a variety of practices to build and maintain trust. The practices viewed as most effective are those that focus on clarifying roles, building interpersonal relationships, and setting goals. The methods can be relatively simple to implement.

Some **trust and team building exercises** include:

- **Personal story-telling**, which involves having each team member describe his/her background and experiences to the rest of the team. A number of different queries can be used to elicit the information. The exercise can take the form of a tabletop discussion or it can be expanded to include pictures, graphics, or whiteboard sketches while describing one's personal story. Use of visual imagery is a way to simultaneously foster creative thought and get team members into a visual thinking mode (see *Tools and Resources*).
  - [Note: Consider providing a short list of topics that personal introductions should cover. If there is no model, usually whatever the first person uses to introduce him/herself says becomes the model for all. With a list, members do not have to worry about saying too little or too much.]

- **Role-clarification exercises** allow team members to describe, discuss, and clarify what they bring to the team. The exercise provides an opportunity for members to think about and explicitly describe how they view their role(s) on the team, given what they understand about the team's goal and their own skills, strengths, and experiences. It also provides an opportunity to highlight and deconflict areas in which the team leader or other team members may see an individual's role differently, or see a connection between some aspect of their personal history and the team's mission. Some example starter questions for role-clarification exercises might include:
  - Given the team's goals, how do you envision your role on this team?
  - What do you bring to the team that is unique?

  Based on how the individual responds to these questions, the team leader can then provide his/her perspective on the questions. For example:
  - "The way I envision your role on this team is…"
  - "What I believe you bring to the team that is unique is…"

Consider rotating leadership and/or facilitation of discourse sessions. The simple act of sitting down (or letting go of the whiteboard marker or computer), and letting members take over gives permission for team members to share ownership of the team, and contributes to building confidence and trust.

Invite critique. Explicitly invite disagreement and alternative points of view from the team members. For example, a team leader who was viewed as particularly effective and trusted by his team explicitly encouraged critical thought from his team members by saying things such as:
- "Somebody challenge me on my assertion."
- "Who at the table disagrees with this?"
- "Where does my idea break down? What factors am I missing?"

While many successful teams appoint a particular individual to serve in the role of devil's advocate, inviting push back from all team members provides an opportunity to get a broader array of countering viewpoints.

Express trust in the team. Successful team leaders have found that affirming their trust in individuals and in the team with statements such as, "I trust you" or "I have faith in your judgment" can be a powerful practice. The simple expression of confidence in teammates can engender trust.

Provide opportunities for social interaction. Social events can be used as an opportunity for team members to know one another on a more personal level as well as provide a needed reprieve from intense research and discourse sessions. (See Managing Team Workflow and Productivity in Module 6). However, team members should not be mandated to attend such events, as this could backfire on the trust-building intent.

Exploit break times. Breaks provide opportunities for team members to talk about the issues they are addressing informally. Not only do team members get to release tension and recharge, they also get to know each other. One team leader usually suggests that his teams break for a cup of coffee about once an hour.

Facilitate relationship-building when bringing in new members. New team members might be added to the team as a replacement for a current team member, or on a temporary basis – such as when external SMEs are brought in for a finite period. Team leaders found it helpful to discuss the addition of new team members with the core team ahead of time. Introduce the new person to the team by describing the new member's background and the skills and expertise they bring. Consider a version of the "personal story-telling" activity that provides the new team member an opportunity to tell the team a little about him/herself and vice-versa.

Recognize the importance of maintaining trust. While attention is often given to trust-building activities, maintaining trust or rebuilding trust when it has been damaged are equally important considerations. Rebuilding trust once broken is different (and often much more difficult) than building and maintaining trust. If trust is damaged (e.g., if a discourse session breaks down into personal attacks), it can take significant effort and time to mend. Thus, attention to maintaining trust is important. A few tips for supporting the maintenance of trust in the team are offered next.

- **Invite team members to monitor the level of trust within the team**. Discuss the importance of trust in the team and recommend that each member take ownership of trust issues in the team. Invite members to monitor trust relationships across the entire span of the team's lifecycle and to actively note or engage the issue when breakdowns are imminent.
- **Conduct internal evaluations to determine the level of trust within the team**. These evaluations can occur as a discussion-based team activity, or with individual team members. Some team leaders described using self- and peer team evaluations conducted by an outside facilitator. These outside facilitators can provide anonymous feedback and constructive recommendations for improved interaction (See Scenario training for agile teams (STAT) booklet in *Tools and Resources*).
- **Provide feedback**. Consider activities for providing constructive feedback to team members. For example, after working together for a sustained period of time, some planning teams have found it helpful to discuss the key strengths and "derailers" for each person on the team. In other words, what does the member bring to the team that offers the greatest benefit? And what does the member bring that could potentially derail the team?

Creating a Team Identity and Culture

Answering the question: "Who are we?" is a critical aspect of getting ready to work as a team. Creating a shared team identity involves discussing and determining the team's purpose or mission, what the team values, and the team's strengths and limitations. It involves understanding who each team member is as an individual, and the attributes and skillsets each person brings to the team. The development of a team identity also encompasses consideration of social norms – that is, what is appropriate and acceptable for engaging with one another? And what is not? Finally, it includes developing a common language, or a shared lexicon. While the team leader certainly plays a pivotal role in answering these questions concerning the team's identity, every member of the team has a role in creating the team identity.

Having a shared team identity is important for common ground and a shared sense of purpose across the team. A shared team identity is also important when communicating with external stakeholders (see Module 7: Communicating with Stakeholders). The team will maximize its opportunity for positive impact within the organization if members communicate the team's purpose clearly and consistently to key stakeholders in and outside the organization.

Key Issues and Challenges

Influence of the organizational context. The planning team's identity is heavily influenced by the organizational context in which the team resides. What the team does, what the team's activity actually looks like, and what the team can offer depends heavily on what is needed and wanted by others within the organization. It is also dependent upon what the larger organizational culture - and the organization's senior leadership - will support. For example, some planning team members reported they had learned to avoid using the term design team when describing the team's activities, because design was perceived so negatively in the larger organization. Thus, understanding the team's organizational context is a key aspect in the development of the team's identity.

The team identity is also based, in a very practical way, on the support the team receives from senior leadership. This includes the support and cover the team receives, both in a political sense and in terms of the resources dedicated to the team's efforts.

Team members of more permanent, longer-term teams, may find that the team's purpose and mission evolves significantly over time as the organizational leadership changes. In addition, as the membership of the team itself changes, the team's identity will evolve.

Tips and Things to Consider

The following strategies have been suggested by experienced planning team leaders as a way to foster a shared team identity.

Recognize what will fit the organization and its leadership. Realize that the team's purpose and identity are heavily wedded to the organizational context in which the team will be working. Therefore, it is important to recognize and discuss "what the market will (or will not) support." In other words, what processes and outcomes will fit or work within the organizational context? What sorts of work products will be well-received, and what are likely to be dismissed?

Elicit and recognize individual expertise. Part of creating the team's identity is understanding the unique skills, characteristics, knowledge, and experiences of each individual team member.

Strategies that teams have found **useful for uncovering the background and expertise of team members** are:
- Providing a biographical sketch of each team member prior to the initial team interaction.
- Providing every team member an opportunity to describe who they are and what experiences and perspectives they bring to the team during initial team interactions.
  - An example activity could be for team members to: "Describe in three minutes or less what you've done over the past five years."
- Conducting a "speed dating" exercise. Each member of the team spends three minutes of time with another team member, learning about each other, and then moves onto the next team member.
  - A variation on this exercise would involve pairing team members together. Each pair takes a few minutes to elicit background information from each other, and then each member of the pair introduces the other person to the team (see *Tools and Resources* for the exercise).

Discuss "Who are we?" as a team. Have team members ask themselves key questions such as:
- Who are we?
- What is the team here to do?
- What unique value does the team offer?

Spend time as a team sharing members' ideas about these topics. Creating visual depictions of the ideas can simultaneously foster visual thinking within the team.

Develop a team elevator speech. As a team, construct a statement that captures the team's reason-for-being, in just a few sentences. This is particularly useful when communicating with individuals within the larger organization and helping them to understand the value the team can offer (see *Tools and Resources*).

Consider documenting key aspects of the team's identity and culture. Documenting the team's identity can be done in an informal one-page "charter" that members can refer to periodically, or that can be posted within the team space for members to re-visit. Or the team's identity can be documented in a more detailed manner. For example, one team leader created a "Team Handbook" that contained explicit statements and graphical representations of the team's mission, the team's values, key team members and their unique strengths, among other information. The Handbook became a resource that team members could refer to or share with members of the organization who asked about the team and its purpose (see *Tools and Resources* for the Team Charter template).

Re-evaluate the team's identity periodically. For a variety of reasons, the team's identity may adapt and evolve over time. This will be the case particularly if the planning team is together for a period of time. Changes in organizational leadership and stakeholder's needs and objectives, or the addition of new team members are factors that may contribute to the evolution and the need for adaptation. At these points, it can be helpful to revisit what the team discussed and agreed upon early in the team's lifecycle with respect to the team's central purpose and mission. Team members should review: "Is this still who we are as a team? How are we different now?"

One team we studied described the evolution that occurred when bringing in new team members. In some ways, bringing in new members can disrupt the existing team identity and create moments of confusion, particularly when legacy team members discuss or allude to past shared experiences. New team members generally will not have common ground or a shared language with the rest of the team. The addition of new members can be disruptive to the team's identity, but can provide new perspectives on which to view the problem set. Adding new team members offers an opportunity for the team to re-visit the question, "Who are we and what is our purpose?" and for the team to evolve their identity accordingly.

Tools and Resources

      This section provides a set of tools and resources to supplement the topics covered in the *Building Trust and a Team Identity* module. This is not intended to be an exhaustive list of resources, but provides a starting point for planning teams engaged in activities to build trust and develop a shared team identity. The material is organized into the following sections: (1) Team Exercises; and (2) Suggested Reading.

(1) Team Exercises

Background exploration exercise
Description: Provides an opportunity for team members to learn about each other's unique skills, experiences, and perspectives through sharing of experiences and backgrounds with the team.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Elevator pitch – Role play
Description: An exercise that helps teams consider and articulate their team's purpose or reason-for-being in just a few sentences.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Scenario training for agile teams (STAT)
Description: A process and set of tools that helps team members get to know one other and rapidly develop into an effective team through discussion of realistic scenarios.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

(2) Suggested Reading

Title: Art of design, Student text, version 2.0
Author: School of Advanced Military Studies (SAMS)
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: The five dysfunctions of a team: A leadership fable
Author: P. Lencioni
ISBN-10: 9780787960759; ISBN-13: 978-0787960759

Title: Trust development in quickly performing teams (QPTs)
Author: S. Garven
Access: contact kimberly.metcalf.civ@mail.mil

Module 5: Engaging Problems as a Team

In this module, we discuss the activities involved in engaging the problem space as a team including:
- How teams can approach an unfamiliar problem set.
- How teams develop an appreciation for its complexity.
- How teams identify potential solutions that emerge from a deep and nuanced understanding of the problem space.

All the other activities described in this resource (i.e., how to assemble a team, how teams develop and sustain trust, how to help a group of individuals begin to work together as a team, and managing team dynamics) are important because they support the team's key task of engaging complex problems. Key aspects of engaging problems include exploring and learning as a team, and capturing learning over the course of the team's activity.

Exploring and Learning as a Team

At the beginning of a conceptual planning effort, teams face the challenge of trying to understand the problem set, while also acknowledging that they don't know what they don't know. The team may be starting with a conceptualization of the problem set that is overly simplistic and possibly off base. Preliminary discussions at this stage allow team members to share current thinking and assumptions about the problems, and to begin the process of intensive information gathering, reading, and reflection.

Virtually all of the team leaders and members we interviewed described engaging in an iterative - and flexibly organized - set of activities for exploring and learning as a team that continued across the span of the planning effort. Learning as a team involves a mix of individual study and reflection interspersed with collaborative dialogue including knowledge sharing, knowledge capture and critique, and product creation.

Key Issues and Challenges

  Engaging in productive discourse. The primary forum for the group's discussion, critique, and exchange of ideas is the team's discourse. Productive discourse is the catalyst that drives teams to generate new ways of thinking about the problem set, and to identify innovative solutions. Discourse is typically described as a way for team members to question one another's ideas, and to refine the team's thinking. And while discourse does have those impacts when it is done well, it has a number of additional benefits.

Effective discourse:
- Reveals the assumptions that underlie an argument or concept and reveals where team members may be biased in their current thinking. Discourse also reveals what members might not be thinking about in regards to the problem set.
- Offers team members the opportunity to explore a concept from differing perspectives by displaying the diversity that exists in the team and gives exposure to a range of viewpoints.
- Reveals areas where the team may lack diversity or sufficient experience, and where external subject matter experts (SMEs) could be valuable.
- Is a basis for developing shared mental models[6] across the team that support the deep understanding of a problem space that teams are working toward.
- Allows the team to identify boundaries and intersections between different areas of knowledge and cultural understanding. Finding creative solutions to complex problems often occurs at the boundaries between disparate areas.
- Is an important basis for building trust in the team and the team's processes.

  As central as discourse is to the team's learning efforts, conducting effective discourse within the team is not without its challenges. Planning teams face a variety of obstacles to effective discourse (see Module 1: Leading the Team) and Commanders and team leaders play a central role in breaking down those barriers and creating an environment within the team that enables open and frank discourse to take place.

  Fostering cognitive flexibility. In addition to discourse, team leaders and members identified cognitive flexibility as a critical facet in developing a shared understanding of complex problems. Cognitive flexibility is the ability to adjust how the team is thinking about the problem space in response to new information or shifting goals. Cognitive flexibility reflects an adaptive style of thinking that allows teams to engage in different modes of thinking, and to incorporate diverse and sometimes opposing points of view into their understanding of a problem space. A deeper understanding of the problem becomes possible when and if the team is able to step away from its current perspective, re-examine the team's assumptions and mental models, and shift to a different framework for understanding the problem set.

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[6] Mental models reflect individuals' beliefs about cause-effect relationships, assumptions and biases about how the world works, and the interconnections among related aspects of a problem space. As people build knowledge and experience, their mental models become richer, more extensive, more interconnected, and more accurate.

In exploring problems as a team, it is important to be purposeful about engaging in different modes of thinking. Some examples of different ways of thinking described by team leaders and members are:

- **Thinking about thinking**. This is also known as metacognitive thinking and reflects a person's awareness of his or her thinking style, usual paradigms or frames of reference, and associated biases. Thinking about how one thinks encourages individuals (and the team as a whole) to be explicit about the frame(s) they are using to understand a problem set. When teams are able to reflect upon and be explicit about how they are thinking about the problem, it allows them to also understand what they might not be thinking about, and to consider alternative points of view that might be important for appreciating the complexity of the problem set.
- **Thinking holistically**. In holistic or systems thinking, the team reflects on how components of a problem set relate to and influences each other, and how the components connect to the larger context (or system) of which they are a part. Holistic thinking is inherently integrative, and is important for helping teams break away from linear cause-effect and compartmentalized ways of addressing the problem (i.e., considering components of the problem set in isolation). When teams are able to adopt a systems-level view, members are able to see subtleties, indirect influences, and interactive effects that may be critically important for appreciating the problem's complexity and anticipating 2nd- or 3rd-order effects of possible actions.
- **Thinking expansively to resolve differences**. Another approach reflects the way the team and its leader manage differences of opinion across the team. One team leader described her refusal to accept either compromise among the team, or voting for the best idea. Instead, she insisted that the team continue working away at the problem and the potential solutions until the team had identified concepts with which all team members could agree. The team expanded their thinking until it was able to encompass divergent points of view.

"I refused to allow it to become a voting situation, which is what the other guys wanted. [Voting] is an American cultural thing, where the best guy wins. [In this case] robust ideas are put forth and advocated for, and the best idea wins. I refused to ok [a process of] ideas winning, [or] a compromise where you water down an idea, or one idea won or lost. It had to be a 3rd way that everyone could agree to. That was the most frustrating thing to other guys on the team. Win or lose they wanted a decision. But I think we came out with a much better product because of that." (U.S. Army COL)

- **Perspective taking**. Perspective taking requires understanding the thoughts, feelings, and motivations of others and examining the problem space from another's point of view. This can be particularly important in operational contexts where the culture is considerably different from the team's cultural composition. Team members may have the tendency to think about the problem space from a U.S. Western point of view, rather than from the point of view of individuals and groups operating from a different cultural perspective. Taking the perspective of others can help to understand important connections and rationale that may be otherwise missed.

- **Thinking visually**. Visual thinking involves thinking and communicating using images and pictures, as opposed to thinking and communicating using language and text alone. Individuals and teams who engage in visual thinking use graphics and imagery to represent ideas and to explore the problem space. Thinking visually can yield rich and varied insights into complex and unfamiliar problems; teams are often surprised at how powerful visual thinking can be and how differently members can understand problems when they use a visual language to explore a problem set.

Interestingly, many of the team members we interviewed described the importance of having access to whiteboards and markers for working through problems and as a collaborative workspace for representing situations, concepts and problems graphically. Some members also described the value of having team members who can think visually. However, our discussions rarely went much beyond those two aspects of visual thinking. In addition, when visual tools were used, the tools were used for creating and representing the teams' understanding at the end of the conceptual planning activity, rather than as a tool to help the team explore concepts and achieve fresh insights.

Each of the aforementioned modes of thinking can be incorporated into discourse sessions and independent reflection to encourage cognitive flexibility, enhance understanding, and help the team achieve innovative solutions. All of these modes of thinking require practice and support. Some of the strategies for helping team members to become more mentally agile are discussed in the *Tips and Things to Consider* section.

Tips and Things to Consider

There are several strategies, tools, and techniques for helping a team make sense of an unfamiliar problem set and explore its complexities. We note a number of them next, organized into two topic areas: (1) engaging the team in productive discourse; and (2) fostering mental flexibility.

Engaging the Team in Productive Discourse

Use starter questions to help the team begin to frame (or reframe) the problem set. One suggestion is to work together as a team to generate all the questions the team can think of regarding the current situation. Record the team's thoughts on a whiteboard as a basis for team discussion and/or further inquiry and reflection.

Identify a set of topics to explore. Working as a team to identify an initial set of topics to explore will help the team get started in exploring and learning as a team. Identification of these topics may stem from the starter questions the team developed. Once the initial topics are identified, the team can begin exploring the topics through discourse, via the literature, or through contacts with experts and others in the know. The Commander or team leader might provide some initial topics to start with, but team members should be encouraged to expand the list in response to their own research.

Model the discourse process. Team leaders who withhold their own point of view and explicitly ask for divergent viewpoints encourage the team to pursue alternative ways of thinking. Consider appointing a devil's advocate or red team representative for each discourse session. The devil's advocate role is to identify gaps in rationale, weaknesses in solutions, and to generate counterargument. While some individuals may naturally fall into that role, rotating this position across various team members avoids any particular person taking on the role of "resident skeptic."

Encourage the team to view moments of confusion as informative rather than negative or evidence that things aren't going well. Points of confusion can be exciting and can indicate where clarification is needed or when reframing is necessary. Ultimately, moments of confusion are catalysts for team learning. To work through these moments and keep the team moving, ask the team to identify a next good step rather than attempting to resolve the entire confusion - e.g., what information or type of expertise could help the team manage the uncertainty they are facing?

Encourage task conflict and energetic engagement with ideas. Interpersonal conflicts should not be allowed to take over the discourse session. Interpersonal conflict can weaken trust within the team and inhibit free exchange of ideas to explore the problem space. However, conflict about ideas and concepts is an important impetus for team learning.

Guide discourse towards discussions that expand the team's understanding in which team members are encouraged to respond to and build on one another's ideas, rather than repeating already stated positions and concepts.

Take breaks. Recognize when the team needs a break from discourse or from each other (see Module 6: Managing Team Workflow and Productivity).

Vary the setting. Vary the setting, including the room arrangement and where people sit. When people sit around the same table in the same seats in the same room that they always do, they tend to have the same conversation.[7]

Set norms for the discourse interaction (e.g., no side conversations; no shouting; respectful language) and enforce them[7]. The norms should belong to the team, rather than being the team leader's responsibility (see Module 3: Getting Ready to Work for example discourse ground rules).

Respect silence. Many people are uncomfortable with silence and tend to fill pauses with words. But silence can be constructive, and allow team members a chance to think over the information and ideas that have been exchanged. Pauses also provide an opening when less vocal members have a chance to talk[7].

Capture ideas. Encourage team members to use notecards or notebooks during the discourse session to capture ideas and responses to the discussion. Asking team members what they may have jotted down during a session can be another method for eliciting input from quieter members of the team.

Elicit chains of reasoning. Encourage team members to be explicit about how they got from data to conclusions. This can help team members better understand the logic behind one another's insights.

Identify key issues, learning, insights, and questions. At the end of a session, ask team members to identify key issues, learning, insights, and questions that have emerged from the discourse. Creating a set of major takeaways that all team members contribute to is preferable to having the team leader summarize the session. Summary items provide an "audit trail" that contributes to knowledge capture, and provides material and next questions for future discourse sessions.

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[7] Based on material in Palus & Horth (2002) The leader's edge: Six creative competencies for navigating complex challenges (pp. 138-141).

Fostering Mental Flexibility
    Key Issues and Challenges
    Thinking about thinking. Reflect upon and discuss how team members think and approach problem- solving. Consider using tools such as cognitive style inventories to help team members become more aware of their thinking tendencies (see *Tools and Resources* for some inventories and assessments used by other teams). Discuss how the military organization, as whole, tends to think and approach problems. For example, one team leader used a strategy called "de-tacticalization." He used a metaphor of a tornado to help the team increase its awareness of the military's tendency to think in a tactical, reductionist, and linear/cause-effect manner, as opposed to an abstract manner (see B. Zweibelson's *Does design help or hurt military planning: How NTM-A designed a plausible Afghan security force in an uncertain future, Part I* in the *Tools and Resources* for more information and the reference).

    Creating a visual mental model. An alternative is to ask team members to create a visual mental model of their thinking, problem solving, or learning process. A shapes toolkit can be helpful here. The toolkit can contain a set of basic paper forms - e.g., shapes, various types of lines for different kinds of groupings (e.g., solid, dashed, dotted, etc.), connection lines for association, and arrows for movement and direction can help (See *Tools and Resources* for example toolkits). For members who do not have experience in visualizing their thinking, a whiteboard and dry erase markers are sufficient. Give each person an opportunity to present their mental model to the team, and discuss similarities, differences, and surprises.

    Provide a variety of tangible work materials in addition to standard books, journals, documents, whiteboards and laptops. The team should have materials for sketching and drawing, building small-scale models (e.g., LEGOs, foam blocks, play dough or clay), along with post-it notes, and highlighters and markers in a range of colors.

Actively consider and discuss alternative points of view.
- Consider assigning team members to reflect on problems through a particular perspective (e.g., from a tribal chief's perspective, from an NGO's perspective, from a civilian's perspective; or through an economic lens, a political lens, a humanitarian lens, etc.).[8]
- Consider using frameworks such as deBono's Six thinking hats or IDEO's Ten faces of innovation (see *Tools and Resources* for the full references) to identify a set of unique perspectives to take when exploring the problem space.
- Another strategy is to consider polar scales (such as competition-cooperation, global-local, self-society, young-old) and to reflect on a particular issue through opposing ends of the scale.

These exercises can also be helpful in identifying when the team may need to seek an external perspective to help the team reflect on the problem set.

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[8] Based on material in Palus & Horth (2002) The leader's edge: Six creative competencies for navigating complex challenges (pp. 138-141).

Use visual tools and techniques to explore the problem space, not just for depicting insights. Outside the military, organizations that are professionally engaged in creative problem solving, innovation, strategic planning, and design (e.g., the Center for Creative Leadership, IDEO, Eastman Innovation Lab, Institute for Design at Illinois Institute of Technology, SonicRim, Doblin) use visual language tools and techniques to help people reflect on complex problems and develop innovative solutions. Some of their tools and approaches may be relevant and useful for military planning teams, not only for representing ideas as the problem- framing activity concludes, but for thinking through concepts in novel ways. These tools can be embedded into the team's discourse sessions, or used individually to have a significant impact on a team's thinking.

- **Use visual language tools**. Visual language tools involve the use of color, graphics, images (e.g., photos, sketches), collage, and shapes to explore concepts and relationships. Visual tools allow a team to expand the modalities the team is using to think about and communicate complex ideas. In particular, visual tools can aid holistic thinking, helping the team to consider and depict interconnections and relationships among various elements of the problem space. This type of shared visual representation can help the team to consider how taking action upon one component of the system might impact multiple other components.

- **Use visual toolkits**. Consider using customized toolkits with shapes, words, connectors, and images to explore complex concepts and depict potential future scenarios (See *Tools and Resources* for example toolkits). Using such tools, members of the planning team can participate both directly and simultaneously in configuring the toolkit elements. Let team members use the kits individually before using the kits collectively as a team.

- **Combine and layer visual tools**. White boards and dry erase markers are good conduits for visualizing information for experienced visual communicators; since these methods are fast and easy to use. Post-it notes are easy to write on and move around, but are not as helpful for seeing the big picture. Paper shapes are more useful for individuals learning how to be more visual in their thinking. Big shapes can help the team to cluster ideas and can also help to reveal the big picture, individual concepts, and interrelationships. The ideal situation is to have access to all three modes and use them alone or together as needed.

- **Remind the team that artistic talent is NOT needed**. Using visual language tools to explore the problem space is not about creating good art, but about using a different set of tools to acquire new and different insights on the problems. Many adults need that reminder (sometimes repeatedly) before they are willing to engage with visual tools and techniques. Some members might be intimidated by the graphic skills of others. Emphasize keeping visualizations rough at this point.

Resist voting on the best idea. The team should avoid having to choose the best idea; encourage members to expand their thinking to account for multiple perspectives and options. Seek out the best features of competing options, and build a new option with the essences of all. While some ideas might seem to be in conflict at the outset, having the team delve deeper into the topics can mean members develop an understanding and insight that can bring those apparently conflicting ideas into alignment.

Capturing and Recording Team Insights

As conceptual planning teams work together, the team's knowledge base expands and their understanding of the problem deepens and evolves over time. Teams often experience turning points or insights that enable them to make a significant leap forward in their understanding of the problem space. A significant consideration for planning and problem solving teams throughout this process is how to document the knowledge, the evolving logic, and the insights that emerge over the course of the team's work.

Key Issues and Challenges

Knowledge capture. In part, dealing with knowledge capture is a resource issue: How much time should the team spend thinking and talking, and how much time should the team spend documenting thoughts and discussion? In part, dealing with knowledge capture is an issue of team member roles and functions: Is there a designated note taker or do people take turns at note taking and documentation? Or, is it up to individual team members to keep track of what seems important to them? How to capture insights, questions, issues and the developing logic that emerges from discourse and other collaborative work sessions is a team issue. What information to capture, at what level of detail, in what form and format, and how to make the team's work products accessible are all key questions for the team to consider.

Sharing the team's products. Related to the issue of capturing the team's learning is the question of when, how and in what ways to share the knowledge products being created (see Module 7: Communicating with Stakeholders). The team's work products can be thought of as spanning a continuum, from those that are internal to the team to those that are created to represent insights and solutions to people outside of the team. Over the course of working together, teams must shift their focus from communicating insights and learning within the team to communicating concepts, insights, and potential solutions to stakeholders. At the point that teams begin creating products and representations for stakeholders, it can be helpful to have access to interim products, along with an audit trail of the team's evolving concepts and rationale.

Tips and Things to Consider

Our interviewees described a range of processes and techniques their teams **used to capture shared understanding and insights** over the course of their effort.

Use a dedicated note taker. Consider using a dedicated note taker whose job it is to record collaborative work sessions. If resources allow, bringing in someone from outside the team can be helpful, freeing all team members to fully participate in the sessions. For some teams, a reasonable alternative is to identify one or two people who are skilled at taking notes on a computer while maintaining attention and involvement with the group. If there are a couple of team members with those skills, those members can trade off the note-taker function.

Consider **appointing a team "visualizer"** who captures the concepts being discussed in a visual format. Identify someone on the team who has this talent, using techniques such as the following:
- Conduct an exercise in visual thinking to help reveal who the visual thinkers are.
- Pay attention to how the team members take notes.
    - Who is taking notes strictly verbally?
    - Who is taking notes using a combination of text and graphics?
- Consider using inventories that measure visual thinking ability.
- Alternatives are to have team members take turns filling the visualizer role, or consider bringing in someone external to the team who is skilled at visualization.

Consider interim reviews of notes. Have the note taker pull content from each working session into a series of PowerPoint slides or Word documents. Consider reviewing (and possibly editing) content as a team at designated points in the team's lifecycle.

Capture whiteboard sessions in a series of photos. Information on the whiteboard(s) can be part of the audit trail and available to team members later on. Consider embedding photos into written documentation of discourse sessions to link them with other work products.

Use butcher block paper to capture notes and timelines. If the team is using a dedicated space, leave the butcher block paper posted to the workspace walls. The notes and timelines can become a record the team uses over the course of the effort to examine where the team has been and how the team's thinking has evolved.

Recognize the limitations of certain information-capture and information-sharing tools and consider alternatives. For example, some planning team leaders have argued that use of PowerPoint alone can stifle critical thinking, creativity, and ultimately understanding in teams and organizations. Other means for capturing and sharing information include narratives, storyboarding techniques, visual representations, or combinations of narratives and visual representations.

Consider video- (or audio-) taping sessions. When working with external SMEs, request permission to audio or video tape the session so team members can revisit those meetings.

Consider using recording/writing tools. Use writing tools that link audio recordings to handwritten notes (example: www.livescribe.com).

Consider using computer-based tools (e.g., mindmaps, concept maps). Use software to capture discussion in graphical form. Note however, that people have markedly different opinions about concept graphing. Some find it valuable, others much less so.

Tools and Resources

This section includes a set of tools and resources to supplement the topics covered in the *Engaging the Problem as a Team* module of this resource. This is not intended to be a comprehensive list of resources; but it provides a starting point for helping planning teams explore the problem space as a team and capture the team's evolving understanding. The resources are organized according to the following topics: (1) Visual Thinking Resources, (2) Videos, (3) Exercises; and (4) Suggested Reading.

(1) Visual Thinking Resources
(Note: We are not endorsing any of the companies whose websites appear in this section; we are simply offering pointers to resources that planning teams may find helpful.)

CMAPTools (Concept mapping)
Description: Free downloadable software for creating concept maps – i.e., graphical representations that depict linkages among concepts.
Access: http://www.ihmc.us/cmaptools.php

Idiagram – The art of complex problem solving
Description: Visual approaches to help people think holistically about complex problems and communicate to those who must act on the problems. Examples of how others have represented complex problems can be accessed by clicking on links on left side of screen.
Access: http://www.idiagram.com/CP/process.html

Maketools.com and Example toolkits
Description: Source for ideas and visual toolkits for fostering collective creativity. See "Managing complexity collaboratively" to view visual toolkits in use.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Neuland.com
Description: Source for purchasing visual thinking and communication tools.
Access: http://www.neuland.com/US/

Periodic table of visualization methods
Description: Examples of a variety of visualization methods organized like the Periodic table of the elements. Example visualizations can be accessed by clicking on each element.
Access: http://www.visual-literacy.org/periodic_table/periodic_table.html#

Visualcomplexity.com
Description: A resource for those interested in visualization of complex networks and visualization methods. Provides a series of examples of how others have visualized their findings and insights.
Access: http://www.visualcomplexity.com/vc/

Visual Explorer exercise
Description: Exercise that helps to promote collective inquiry, meaning making, and creative conversations, through use of images.
Access: http://www.innovationmanagement.se/imtool-articles/well-designed-visual-explorer-tool-enables- creative-dialogue-and-collaboration/

Visual Explorer images
Description: A set of images available for purchase to support teams in engaging in creative conversations and achieving new insights. See video, Visual Explorer with David Horth, for more on Visual Explorer.
Access: http://visualexplorer.smugmug.com/VE/Visual-Explorer8482-image/3258227_G6sM8L#!i=180428761&k=SqCGZpP

(2) Videos

The art of data visualization
Description: PBSoftBook digital series video that discusses the role of visual strategies to communicate information.
Access: Video available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.youtube.com/watch?v=AdSZJzb-aX8

Managing complexity collaboratively
Description: Depicts a co-creation session by dnxGroup that involved use of a variety of visual language tools for exploring the problem space and developing solutions.
Access: Video available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://vimeo.com/16437305

Visual Explorer with David Horth
Description: David Horth of Center for Creative Leadership describes the value of using images for having creative conversations and solving complex problems.
Access: Video available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://vimeo.com/57242044

(3) Exercises

Art of design, Student Text, Version 2.0
Description: School of Advanced Military Studies (SAMS) text on design that provides multiple practical exercises and tools in Appendix B – e.g., Six Thinking Hats, Challenging Assumptions, Mind Mapping, Challenging Boundaries. See pp. 286-319.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Everyday creativity exercise
Description: Helps team members recognize where and how their creativity is being expressed in everyday life, so they can then apply that way of thinking and being to their work.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Six thinking hats
Description: Exercise to encourage team members to look at a problem from different perspectives.
Access: http://www.mindtools.com/pages/article/newTED_07.htm

(4) Suggested Reading

Title: Asking the right questions. A guide to critical thinking
Author: M. Browne and S. Keeley
ISBN-10: 0205111165; ISBN-13: 978-0205111169

Title: The back of the napkin (Expanded Edition): Solving problems and selling ideas with pictures
Author: D. Roam
ISBN-10: 1591842697; ISBN-13: 978-1591842699

Title: Blah, blah, blah: What to do when words don't work
Author: D Roam
ISBN-10: 1591844592; ISBN-13: 978-1591844594

Title: Convivial toolbox: Generative research for the front end of design
Author: E. Sanders and P. Stappers
ISBN-10: 9063692846; ISBN-13: 978-9063692841

Title: Dialogue mapping: Building shared understanding of wicked problems
Author: J. Conklin
ISBN-10: 0470017686; ISBN-13: 978-0470017685

Title: Does design help or hurt military planning: How NTM-A designed a plausible Afghan security force in an uncertain future, Part I
Author: B. Zweibelson
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: The leader's edge: Six creative competencies for navigating complex challenges
Authors: C. J. Palus and D. M. Horth
ISBN-10: 0787909998; ISBN-13: 978-0787909994

Title: The practice of creativity: A manual for dynamic group problem solving
Author: G. Prince
ISBN-10: 0963878484; ISBN-13: 978-0963878489

Title: Six thinking hats
Author: E. de Bono
ISBN-10: 9780316178310; ISBN-13: 978-0316178310

Title: Stir symposium Author: Stir Symposium
ISBN: 9780615583488

Title: Structured Planning: Advanced planning for business, institutions, and government
Author: C. Owen
Access: Available free of charge at http://www.scribd.com/doc/86148792/Structured-Planning-Textbook

Title: Teams: Graphic tools for commitment, innovation, and high performance
Author: D. Sibbet
ISBN-10: 1118077431; ISBN-13: 978-1118077436

Title: The ten faces of innovation: IDEO's strategies for defeating the devil's advocate and driving creativity throughout your organization
Authors: T. Kelley and J. Littman
ISBN-10: 0385512074; ISBN-13: 978-0385512077

Tile: Visual language: Global communication for the 21st century
Author: R. Horn
ISBN-10: 189263709X; ISBN-13: 978-1892637093

Title: Visual leaders: New tools for visioning, management, and organization change
Author: D. Sibbet
ISBN-10: 1118471652; ISBN-13: 978-1118471654

Module 6: Managing the Team

A central aspect of the team leader's role is managing the internal workings of the team. Managing the team includes managing the interactions among the team members, as well as controlling the pace, energy level, and overall workflow of the team. While it is the responsibility of all team members to monitor the team's processes and internal dynamics, the team leader is in a unique position to help the team maintain a positive and productive tone for discourse and sensemaking, and to maintain progress.

Some of the issues discussed in this module include:
- Managing diverse (and sometimes difficult) personalities and competing personal agendas.
- Managing conflict, and differentiating between productive and unproductive conflict.
- Ensuring the team has the benefit of every member' knowledge and skills.
- Monitoring the teams' energy level and tone of interactions in order to manage the team's workflow and productivity.
- Stepping away from the work itself to discuss how the team is functioning; what's working, what isn't, and what needs to be adjusted.

Managing Interpersonal Dynamics

Managing the team's interpersonal dynamics involves understanding the personalities of individual team members, as well as the communication and interaction styles of each member. Managing the interpersonal dynamics of the team also requires anticipating when conflicts or clashes may arise due to differences in personalities. Being well-prepared to manage challenges to the team's interpersonal dynamics can help facilitate a sense of team cohesion and productivity.

Key Issues and Challenges

Managing team member personalities. A key challenge in managing the planning team's internal dynamics is managing the diverse personalities of the people within the team. Diversity is important and advantageous for the team as they engage in sensemaking and complex problem solving (see Module 2: Assembling the Team for more on the role of diversity within a team). But diversity within the team can also lead to concerns in managing team members with widely varying personalities, experiences, and perspectives. This challenge becomes even greater when external subject-matter experts and non-military partners are brought into the team temporarily. External partners may have personal agendas, varying views of the military and the military's mission, and goals that are distinct from the planning team's mission and objectives.

Managing communication styles. Another issue involves ensuring that everyone's ideas and perspectives get shared during discourse sessions. Some team members are likely to be very comfortable speaking up and sharing their views and ideas; these members may (intentionally or not) dominate the discourse. Other team members may be more comfortable listening than talking, or may be reticent in response to strong, vocal personalities. On teams where certain people dominate the conversation, access to the full range of viewpoints and perspectives can be reduced. It is the responsibility of both the team leader and other team members to create opportunities for those who are less vocal to contribute to the discourse.

Tips and Things to Consider

There is an extensive literature available on team dynamics and conflict management. The intent for this resource is not to summarize the entire field, but to offer a few strategies that planning team leaders have found helpful for managing the internal dynamics of their teams. (Note: Many of these practices can be considered as part of Module 3: Getting the Team Ready to Work).

Discuss and agree upon the dynamic for the team. Early in the team's lifecycle, the team should consider and discuss the type of atmosphere and tone the team should have.

Example discussion **questions to ask about the team dynamic**:
- What dynamic should we have as a team? And how can we foster it?
  - For example, should the team climate be such that conflict is not only acceptable, but desirable and expected?
  - Should the team expect team members to call one another out if they seem to be agreeing too much with others' views?
  - Is it okay if the discussion gets heated and contentious at times?

The team should work together to articulate and create a set of norms that all members can agree to. Explicitly raising these questions as discussion topics can help set norms and expectations across the team, and give team members a baseline for monitoring themselves and their interactions.

Monitoring the team dynamic. Actively monitor and anticipate ways in which the desired team dynamic might be threatened. Once the team has achieved a common view of the desired internal dynamic, it can be valuable for the team to ask itself: "What are the ways this dynamic might get off track?" One way the team might examine this question is through use of a pre-mortem exercise (see *Tools and Resources* for an example). By identifying and discussing the behaviors that could steer the team away from its intended climate, members can recognize and address these behaviors if and when they occur.
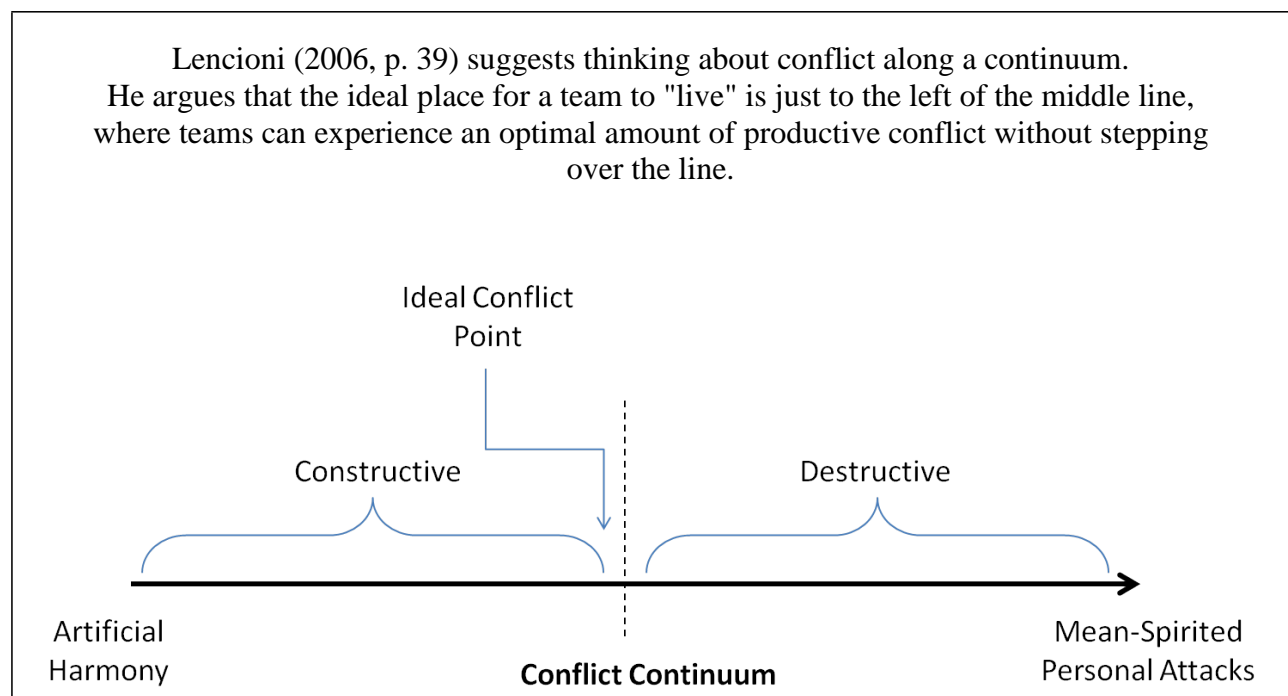
Learn about team members. Part of effectively managing the interpersonal team dynamics is understanding the diverse personalities, skill sets, and experiences that members bring to the team. Consider using tools such as the Myers-Briggs Type Indicator® (MBTI®) or Clifton StrengthsFinder in combination with activities such as personal story telling (see *Tools and Resources* for the reference) to learn about team members. Understanding the individuals comprising the team can be helpful for a variety of purposes including:
- Interpreting the actions and behaviors of individual team members.
- Matching individuals to tasks that best suit their skill sets.
- Negotiating team member roles.
- Anticipating barriers to progress.
- Understanding and anticipating preferred modes of communicating and interacting with others in the team context.
- Understanding different styles of learning and processing information.
- Anticipating, understanding, and managing conflicts among team members if/when they occur.

Create a "team strengths profile." The team strengths profile can be created by combining everyone's strengths from the StrengthsFinder[8] inventory. Discuss the overlapping areas and the gaps that exist. Develop ideas for compensating for the gaps. Visualize the profile on a whiteboard or other visualization medium for members to refer to periodically.

Convey expectations about conflict within the team. Openly discuss the reality of conflict within the team and communicate expectations for the team's climate (i.e., lively debate, energetic exchange, open sharing and critique of ideas for the purposes of gaining deeper understanding). Acknowledge that conflict may be uncomfortable at times, but that there is value in actively (yet respectfully) questioning one another's ideas and perspectives. Communication breakdowns and conflicts are important opportunities for reflection and learning.

Recognize different types of conflict. While task-based conflict (i.e., conflict centered on ideas and work processes) can be productive, interpersonal conflict (i.e., personal attacks) can stifle creativity, erode trust, and impede team performance. Interpersonal conflict can also interfere with team members' abilities to process information by adding to their mental load and diverting their attention away from the team's task. Recognize conflict that is damaging, and minimize it to the greatest extent possible (see Lencioni's Conflict Continuum next).

Lencioni (2006, p. 39) suggests thinking about conflict along a continuum.
He argues that the ideal place for a team to "live" is just to the left of the middle line,
where teams can experience an optimal amount of productive conflict without stepping
over the line.

Ideal Conflict
Point

Constructive

Destructive

Artificial
Harmony

Conflict Continuum

Mean-Spirited
Personal Attacks

_____

[8] StrengthsFinder is an assessment tool that can help individuals identify and become more aware of their unique strengths. See "Tools and Resources" for more information on this assessment tool.

Seek opportunities to mine productive conflict. The team leader, with help from team members, should seek opportunities to bring areas of task-related conflict to the forefront for team discussion and deeper understanding. Some "starter language" for doing so includes:

- "The point that [insert name] just made doesn't seem to be resonating wth you. Explain to us what you're thinking."
- "You seem to be disagreeing with that concept, explain to us where you're not aligned."
- "Tell us why that theory doesn't make sense from your perspective."
- "I saw you shaking your head…can you help understand what's causing your concern about that idea?"

Addressing difficult personalities. Team leaders reported a range of approaches they used to manage challenging individuals (i.e., those who dominate discussion, dismiss other's ideas, or engage in personal attacks). In certain cases, team leaders have used a direct approach and confronted the person within the context of the team interaction. Other team leaders have found it helpful to have side conversations with the individual. A strategy one team leader used was to remind the team of the ground rules to which the members had agreed. In extreme cases, team leaders have removed the difficult team member from the team, and sought out a replacement who was a better fit for the team's goals and work style.

Implement a "spectrum policy." The spectrum policy[9] acknowledges that all ideas or viewpoints have both good (useful) and bad (not useful) aspects. Despite the amount of bad aspects there might be, there is always some good in an idea. Instead of responding with "that won't work because…" or "that doesn't make sense because…" encourage the team to look at the idea as a spectrum, and pick out a good part of it to build upon constructively. This can help to keep the owner of the idea engaged, and also preserves team momentum.

Ensure everyone's ideas get into the mix. Recognize when a particular team member has not spoken for a period of time and create opportunities for these individuals to share their ideas. Be attuned to relatively simple things such as:

- Who has the marker in his/her hand at any given time? The person standing at the whiteboard holding the marker is the person whose idea will be listened to. Keep track of marker/whiteboard access, and make sure everyone in the group gets some time up at the board.
- If one person is typing, are they typing the ideas as people said them? Or are they filtering/editing? It can be helpful to have a designated "recorder" for the group, and it is important that ideas are recorded as spoken.
- Who has been quietly taking notes in his/her notebook? Pause at points to ask them to share what they have been noting.

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[9] From George Prince's (1970) book Synectics.

Other practices to ensure all team members' ideas get into the mix include:

- **Assign "homework" that people are to bring prepared to present**. Ask for a volunteer to present first and then go round-robin to ensure that everyone has an opportunity to give their unique point of view.
- **Discuss the team members' communication styles**. Invite everyone to make a chart that scales certain modes of communication according to how comfortable they are with each one: phone, text, face-to-face, Skype, Twitter, blog, etc. Discuss the findings, and decide as a team whether it makes sense to have modes of communication beyond face-to-face to support teamwork.
- **Create silence**. Achieving silence for a moment is important when some members are not speaking. Sometimes one team member can monopolize the conversation by stepping on the comments of others; these members take over the conversation before anyone else can get a word in edgewise. When this happens, the team leader has to step in and call on quiet members for their comments. Left unattended, monopolized conversations lead to dysfunctional team meetings and resentment on the part of those who could not participate.

Actively monitor and reflect on the team's dynamic. Allow time for reflection and team discussion on the team's work styles, processes and internal dynamics. Remind the team of the climate the members wanted to create. Is that climate being achieved? If not, what is getting in the way? Taking time periodically for these discussions can ultimately lead to gains in the team's productivity.

Address common triggers for destructive conflict. As part of the reflection process, identify and note any common factors that tend to trigger unproductive (i.e., interpersonal) conflict within the team. Discuss how those triggers can be avoided or minimized as a team.

Managing Team Workflow and Productivity

Awareness and management of the team's workflow is a critical activity for productive planning and problem-solving teams. It involves monitoring the team's timeline and progress toward the team's goals and deliverables, but also monitoring and managing the team's energy level and climate so the team can maintain progress.

The team's work will involve iterative cycles of independent reading, research, and reflection. Team members will come together for discourse, to hear what other members have learned, to discuss and build upon their understanding of problems, and to identify knowledge gaps. Then team members will likely return to more independent or small group research and reflection. Throughout these work cycles, the team leader needs to maintain awareness of the team's "battle rhythm." When is the rhythm so intense that it is actually counterproductive? At what point does discourse need to end so that independent reading and reflection can occur? Does everyone simply need a break from the intensity of thinking and learning? The team leader needs to balance the reading, the discourse, and knowledge capture so the team does not become stagnant.

Key Issues and Challenges

Monitoring the pulse of the team. Managing the team's workflow requires knowing the personality of the team as a collective unit, and gauging when the team needs to be challenged and when the team needs a break or change in venue. Effective leaders are able to read their team and recognize when team members are frustrated, unfocused, or the ideas are getting stale. Perhaps team members are starting to quarrel because they are tired, hungry, or have been sitting in the room staring at a whiteboard too long. In these moments, effective team leaders recognize the need for a change in activity and for shifting the team's attention in a way that creates opportunities for members to be most engaged.

Keeping a pulse on the team can be particularly difficult when the leader is also extensively engaged in the intellectual activity of the team. It requires that the team leader participate in the research and the discourse while simultaneously tracking the state of the team and its individual members. Monitoring the team requires the team leader to consciously step back at moments and remove him/herself from the content of the discussion to assess the team's overall tone and energy level.

Balancing internal work processes and external deadlines. Perhaps the biggest challenge for teams is how to balance the tension between external timelines and stakeholder pressure to produce actionable insight, and the time the team needs to do its work well - time to research, time to think about the problems, time to discuss, and time to just let the ideas marinate. Ultimately, the team and its leader need to ensure the team meets the Commanders needs and deadlines, and figure out how to fit their workflow within those constraints.

Tips and Things to Consider

Planning team leaders have described several **strategies for managing their teams**. These strategies are described next.

Set expectations for workflow. Work collectively to create a schedule and expected flow of activity. This should happen at both the meta-level (i.e., regarding the flow of expected activity over the team's life cycle) and at a more micro-level (i.e., an agenda for a given meeting, the topics to cover and amount of time for each topic). The schedule should include key milestones (i.e., when key products will be completed and made available to stakeholders) as well as "gateways" when approval must be given for work to continue to a next phase. While the schedule or agenda are meant to be flexible, it should provide members with a vision of what to expect and how to manage their productivity. This will help the team anticipate and mentally prepare for the intense periods of thinking and discussion.

Stay attuned to indicators of mental fatigue. Attend to behavioral indications that the team needs to restructure or alter its activity. Some cues that indicate it is time to shift activities are fairly obvious - e.g., low energy, lots of yawning, eyes glazing over, fidgeting. However other clues are not as obvious - e.g., the team is stuck generating the same ideas, the discussion is circular, there are significant lulls in the discussion, members are becoming disagreeable over relatively insignificant issues, and individuals are withdrawing from the discussion or having tangential conversations. Being attuned to these cues can help the team leader and other team members recognize when the team needs a break, a change in activity, or a different work setting.

Conduct periodic check-ins on team process. Plan for and carve out time to step away from the work itself to discuss how the team is functioning. When the team is in the midst of the work itself, it can be easy to get so caught up in the work that team members forget to think about how the team is working together—to reflect on the dynamics of the team itself. Regular process checks can be particularly helpful in managing the team's workflow and productivity.

Process checks are not focused on content. Rather they are discussions about work style, work processes and progress toward the team's goals. For example:

- What is working well, and what isn't with respect to the team's process?
- Are we doing what we agreed we do? If not, and if we've simply evolved, are we ok with that?
- What needs to be adjusted?
- Are we making progress?
- If not, what's getting in our way?

An experienced team leader suggested holding After Action Review (AAR) sessions to gather feedback from the team and individually with members about how and what can help them be productive. Another potential exercise you might consider for guiding your discussion is the "plus/delta" exercise (see *Tools and Resources* for a description and reference).

Tools and Resources

This section provides a starting set of resources that planning team leaders might find useful for managing the team dynamics. The resources are organized into the following topic areas: (1) Exercises, (2) Assessment Tools; and (3) Suggested Reading.

(1) Exercises

Background exploration exercise
Description: Allows team members to better understand what each individual brings to the team by sharing personal experiences and backgrounds with the team.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Engaging everyone – Liberating structures
Description: A handbook containing a range of exercises including ice breakers, physical space suggestions, creative thinking techniques, question asking techniques, and approaches for improving interpersonal and team communication.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at www.groupjazz.com

Plus/delta exercise
Description: An exercise to identify and discuss aspects of team process that are working well, and aspects that need to be changed.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Pre-mortem exercise
Description: An exercise to identify and address key vulnerabilities in a plan or team vision.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

(2) Assessment Tools
(Note: We are not making any claims about the scientific validity and/or reliability of these tools. They are tools that planning teams have found helpful for practical use.)

Clifton StrengthsFinder
Description: Assessment test to uncover one's personal strengths.
Access: https://www.gallupstrengthscenter.com/

Cognitive-Style Inventory
Description: Assessment to identify cognitive styles and help to anticipate benefits and drawbacks for each.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Myers-Briggs Type Indicator® (MBTI®)
Description: Questionnaire to measure psychological "types" – i.e., how one perceives the world and makes decisions.
Access: http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

MBTI®Complete
Description: Online MBTI tool that does not require a certified individual.
Access: https://www.mbticomplete.com/en/index.aspx

Team Role Experience and Orientation (TREO); TREO survey
Description: A teamwork style survey developed by the U.S. Army Research Institute (ARI). Designed to help teams and team members examine their preferences and how they typically work in a team.
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

(3) Suggested Reading

Title: The five dysfunctions of a team: A leadership fable
Author: P. Lencioni
ISBN-10: 9780787960759; ISBN-13: 978-0787960759

Module 7: Communicating with Stakeholders

       This module addresses the communication that occurs between the conceptual planning team and its key stakeholders. While the majority of this resource addresses the internal functioning and dynamics of the planning team, a critical aspect of the team's effectiveness is the exchange that occurs between the team and those who rely on the insights and products the team develops – the detailed planners, Commanders, and other senior leaders.

Issues raised within this module include how the team:
- Conveys its understanding to those outside the team.
- Develops an understanding of the stakeholder audience.
- Decides when to engage the Commander within its work.

       While the team itself may achieve significant depth of insight and shared understanding about the problem it is facing this process is not an intellectual exercise that occurs in a vacuum. The team has to effectively convey its understanding of the problem to key decision makers and other users of the information. This module addresses challenges, tips and strategies for taking the team's collective work forward to those outside the team.

Key Issues and Challenges

    Packaging the information. A primary issue that makes conveying understanding to external stakeholders challenging is figuring out how to "package" the information in a way that is meaningful and impactful.

    A challenge is to recognize the possibility that interim products that may be well-understood within the team may not necessarily be readily absorbed and understood by those who have been uninvolved in making sense of the problem. Graphics, drawings, and complex language that are clear and straightforward to those within the team can be entirely incomprehensible to those outside the team. Furthermore, when teams invest significant time and effort into the development of products, members can become enamored with those products and be blinded to the possibility that the products may not make sense to others.

"Perhaps one of the most damaging things that design practitioners do…is to present emergent products as the results of design work. I use the term 'emergent products' to describe the many complex, often engrossing drawings, whiteboard sessions, and PowerPoint slides that planning teams build during their journey to understand and appreciate a complex problem. These design products usually contain language, concepts, and graphics that resonate for the planning team, but… The products are also often impossible for the larger audience and the decision maker to understand…"
                                                    (Zweibelson, 2012, p. 86)

A recent and well-known example of this problem published in the New York Times[10] was the U.S. military's plan for Afghanistan stability and security—otherwise known as the "spaghetti slide."

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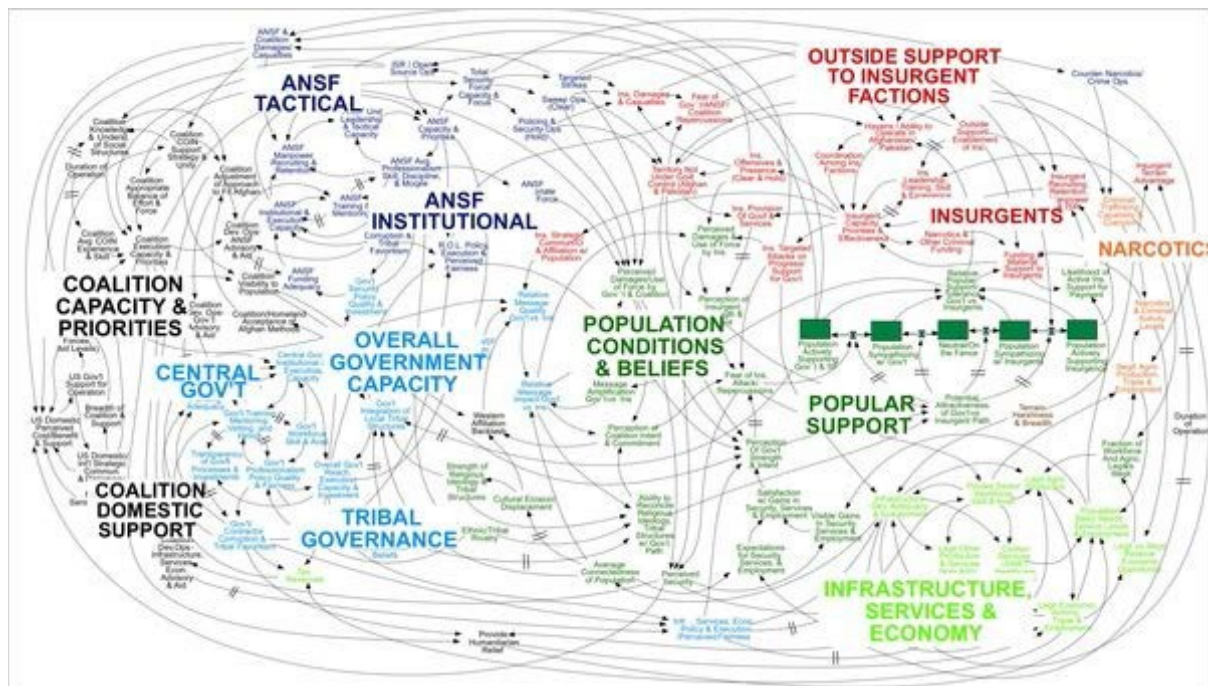
[10] http://graphics8.nytimes.com/images/2010/04/27/world/27powerpoint_CA0_337-span/27powerpoint_CA0- articleLarge.jpg

As General McChrystal apparently remarked at the time, "When we understand that slide, we'll have won the war." This example illustrates a crucial delineation that needs to be made between knowledge representations that are used for internal team sensemaking purposes, and those that are used to convey ideas and insights to others.

Understanding the stakeholder audience. A related challenge is getting to know the stakeholder audience for the team's products and the way the audience would prefer to receive and absorb information. Different stakeholders will have different preferences for consuming information. Some stakeholders may want face-to-face updates, some may favor narrative descriptions, and other stakeholders will prefer a visual representation. Getting to know the audience will help the team tailor its message and communication medium to the preferences of key stakeholders.

Commander engagement. An additional factor relevant to communicating with external stakeholders is the level of Commander engagement with the team. While the planning team's activity is always done at the behest of the Commander, planners described considerable variability in the level of Commander involvement in the actual activity. Due to an enormous array of competing demands, the Commander may have very little involvement in the day-to-day workings and dialogue of the team. Because of this, he/she is unlikely to be exposed to the evolution of logic underlying the team's insights and recommendations. In these situations, teams need alternative strategies for keeping the commander apprised of the team's evolving understanding, such as communicating to him through senior leaders or various information-sharing media and products.

Finally, communicating complex information is challenging. It can take years of training and experience to become skilled at effectively communicating complex concepts to others. This is true for communicating in multiple modalities, including in written text, verbally, and visually.

Tips and Things to Consider

The following is a set of hints and strategies to consider **when conveying the team's understanding and insights to external stakeholders**.

Study the team's stakeholders. Effectively conveying the understanding and recommendations the team has developed requires that the team understand stakeholders' needs, styles, and preferences for consuming information. Some teams are able to figure this out fairly effortlessly based on regular interactions with key decision makers. But other teams have found the need to actively discern the needs and preferences of their stakeholders.

Strategies for **understanding the needs and preferences of the team's stakeholders** include:

- **Conducting a stakeholder analysis**. As a team, explicitly identify and discuss the key stakeholders.
    - Who are they?
    - What is the team's understanding of the stakeholders' goals and needs?
    - What decisions will the team's products be informing?
    - How might needs of diverse stakeholders align or be in conflict with one another?
    - What does that mean for the product the team ultimately provides for the stakeholder? (see Stakeholder analysis in *Tools and Resources*).

- **Directly asking**. If the opportunity avails itself, have a conversation or informal interview with key stakeholders. Ask them what they want and need, what their goals are, and how they will use the insights and products the team develops.

- **Considering a dual leadership arrangement** for the team. One team we studied found it valuable to have two types of leaders:
    - A "down and in" guy who focuses on the day-to-day internal workings of the team.
    - An "up and out" guy who serves as a link between the team and the external organization. This person is someone who knows the organization and understands the politics. He/she can feed information back to the team about the clients' needs and preferences, and also provide a check on whether insights and products developed by the team are aligned with clients' needs and preferences.

- **Socializing ideas with stakeholders**. Planning and problem solving teams have found it effective to provide interim updates to key stakeholders as their understanding and ideas evolve - rather than waiting until they have completed their product. This provides an opportunity for the team to get outside their own head, to expose stakeholders to their logic, and to get feedback to help them refine their thinking. In some cases these updates might occur verbally; but other teams have found it effective to provide written updates such as ½-1 page narratives for stakeholders to mark up with feedback.

Recognizing the natural tendency to become enamored with internal team products. Although the team's interim analysis products and visual representations may hold significant meaning for the team in framing the problem, those internal working products may not be appropriate for the stakeholder audience. The products need to stand alone and make sense to key stakeholders.

Recognizing that simple does not equal simplistic. Simplify the language and visual representations; but avoid making it so simple that the meaning is lost or obscured. Resist using complex and novel terminology that the team has used to explore the problem; it may be viewed as esoteric by the audience. Explain insights and recommendations using standard organizational terms and language. For example, when the audience includes detailed planners, couch the team's insights and products in language the audience is accustomed to using. The extent to which the team can simplify concepts using language the organization is accustomed to using will increase the likelihood that it is understood and acted upon by stakeholders.

Seeking external feedback. Consider bringing in someone outside the team to give the team a "sanity check" on its final products. This person might be resident within the organization; or he/she could be someone the members' trust outside the immediate organization (depending on classification level of the products). In one successful planning team, the person who was able to provide this external feedback was the "up and out" guy – the individual who was not involved in the day-to-day workings of the team, and who served as a liaison with the stakeholder audience. Seeking external feedback can help the team evaluate its products by reflecting on questions such as:

- Does the product make sense to someone outside the team?
- Does the product communicate what the team is trying to have the product communicate?
- Does the product involve a lot of explanation? Or can the product stand alone?

If someone is brought in to review the team's products, it can be helpful to have this individual explain back to the team the message he/she is taking away from the product review. This activity can help to illuminate potential points of confusion or areas that need to be rewritten or refined.

Considering alternative means of packaging the information. Though PowerPoint is a common tool for packaging and communicating information within the military, PowerPoint is not without its flaws (see "How PowerPoint stifles understanding, creativity, and innovation within your organization" in *Tools and Resources*).

Different ways that planning teams have communicated their insights and recommendations (in ways other than a slide deck) include:
- ½-1 page stakeholder narratives that provide a non-bulleted text-based description of the ideas and recommendations,
- Visual representations that model ideas and recommendations using graphical media, or some combination thereof.
- One team leader described packaging his team's insights into what he referred to as alternative realities - which were different views on the area of operations couched in differing assumptions.

Leveraging existing tools and technology to communicate. When possible and appropriate, consider how to leverage existing communication mechanisms to share the team's evolving understanding and recommendations. One team, for example, described the utility of using Command Post of the Future (CPOF) - rather than static PowerPoint slides - to communicate the evolution of their understanding within the dynamic operational environment.

Considering alternative communication tools. For example, consider PREZI (www.prezi.com) instead of PowerPoint for visually representing complex ideas. Prezi can also be a helpful tool for the team to explore and understand the problem space and for documenting the team's shared understanding as it evolves.

Building in opportunities for discussion and exchange with key stakeholders. It is important to provide opportunities for the stakeholders to ask clarifying questions, elaborate on ideas, and seek additional information on the team's products. In some cases, there may be built-in continuity (i.e., someone involved in the conceptual planning/problem framing phase may also be involved in the detailed planning). But this is not always the case. One major concern that has been expressed is that designers'/conceptual planners' recommendations are simply "for detailed planners to implement." To smooth the transfer of ideas and insights to those who need to act on them, consider actively building in opportunities for this important exchange and continual iteration of ideas to occur.

Seeking the Commander's input at key decision points. While the Commander commissions the team, most Commanders simply do not have the bandwidth to be involved in the day-to-day workings and dialogue of the team. Therefore, the team needs to be strategic about when to seek the Commander's guidance and how to best use limited opportunities for interaction with him/her.

Team leaders have described **key triggers that alert them to the need to engage the Commander**. For example:
- When there is a decision point they need his/her perspective on.
- When the team needs a more explicit statement of objective or intent.
- When the team is having difficulty figuring out a productive way forward.
- When the team realized they need to reframe their understanding.
- When the team needs assistance identifying or recruiting a new team member or subject matter expert.
- When a particular team member is not working well with others and/or not aligning with the team's mission and values.
- When the team has completed its final product(s) and needs the Commander's final stamp of approval.

Tools and Resources

This section provides a set of tools and resources to augment the material in the *Communicating to Stakeholders* module. This set of resources is not intended to be exhaustive, but to provide a starting point for planning teams   as they communicate their shared understanding and insights to those outside the team. The material is organized into the following set of topics: (1) Visual Communication Resources and Tools, (2) Videos, (3) Exercises; and (4) Suggested Reading.

(1) Visual Communication Resources and Tools

CMAPTools (Concept mapping)
Description: Free downloadable software for creating concept maps – i.e., graphical representations that depict linkages among concepts.
Access: http://www.ihmc.us/cmaptools.php

Idiagram – The art of complex problem solving
Description: Visual approaches to help people think holistically about complex problems and communicate to those who must act on the problems.
Access: http://www.idiagram.com/CP/process.html

Periodic table of visualization methods
Description: Examples of a variety of visualization methods organized like the Periodic table of the elements. Example visualizations can be accessed by clicking on each element.
Access: http://www.visual-literacy.org/periodic_table/periodic_table.html#

Prezi.com
Description: A presentation tool (and alternative to Microsoft PowerPoint) that helps individuals organize and share their ideas in a visual manner.
Access: http://prezi.com/

Visualcomplexity.com
Description: A resource for those interested in visualization of complex networks and visualization methods. Provides examples of how others have visualized their findings and insights.
Access: http://www.visualcomplexity.com/vc/

(2) Videos

Dan Roam – Blah Blah Blah: What to do when words don't work
Description: Dan Roam describes how pictures and drawings can communicate complex ideas.
Access: Available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.youtube.com/watch?v=PsrFuXefZ1Q

The art of data visualization
Description: PBSoftBook digital series that discusses the role of visual strategies to communicate information. Access: Available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.youtube.com/watch?v=AdSZJzb-aX8

Simplifying complexity
Description: Ecologist Eric Berlow describes communicate complex systems using simple graphics. Access: available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.youtube.com/watch?v=AdSZJzb-aX8

Healthcare on a napkin
Description: An example slideshow from author Dan Roam demonstrating how to clarify and communicate complex problems using simple drawing tools.
Access: available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*; also available at http://www.slideshare.net/danroam/healthcare-napkins-all

(3) Exercises

Stakeholder analysis guidance; Stakeholder grid template
Description: Tool for identifying and understanding key stakeholders.
Access: http://www.mindtools.com/pages/article/newPPM_07.htm; grid template PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

(4) Suggested Reading

Title: ADRP 5-0: The operations process
Author: Headquarters, Department of the Army
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: The back of the napkin: Solving problems and selling ideas with pictures
Author: D. Roam
ISBN-10: 1591841992; ISBN-13: 978-1591841999

Title: The Cognitive style of PowerPoint: Pitching out corrupts within
Author: E. Tufte
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: How PowerPoint stifles understanding, creativity, and innovation within your organization
Author: B. Zweibelson
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Military design in practice: A case from NATO training mission - Afghanistan
Author: B. Zweibelson
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: A practical guide to design: A way to think about it and a way to do it
Author: T. Perez
Access: PDF available on CD-ROM, *Making Sense of Complex Problems: A Resource for Teams*

Title: Visual leaders: New tools for visioning, management, and organization change
Author: D. Sibbet
ISBN-10: 1118471652; ISBN-13: 978-1118471654

Title: Visual teams: Graphic tools for commitment, innovation, and high performance
Author: D. Sibbet
ISBN-10: 1118077431; ISBN-13: 978-1118077436