U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)

Making Sense of Complex Problems Website

Army University Learning Sciences Committee

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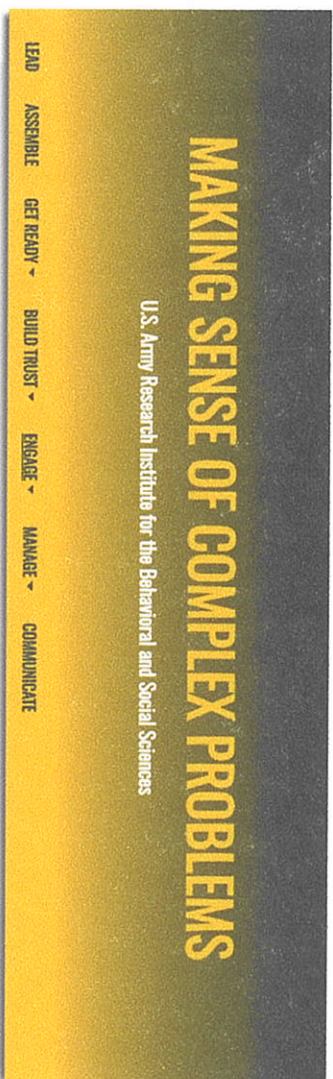cary.r.stothart.civ@mail.mil / 913-684-9788

Making Sense of Complex Problems

- New website developed by ARI.
- Online resource for:
  - Making sense of complex problems
  - Determining ways to address complex problems

Content Sources:

- Interviews with experienced military planners and leaders.
- Interviews with individuals who lead planning, design, and/or problem-solving teams in the civilian context.
- Military and academic literature on teams, design, and complex problem solving.

LEAD | **ASSEMBLE** | **GET READY ▾** | **BUILD TRUST ▾** | **ENGAGE ▾** | **MANAGE ▾** | **COMMUNICATE**

MAKING SENSE OF COMPLEX PROBLEMS

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Exploring and Learning as a Team

At the beginning of a conceptual planning effort, teams face the challenge of beginning 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 among team members at this stage allow 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 team 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 effort. Learning as a team involves a mix of individual study and reflection interspersed with collaborative dialogue including knowledge sharing, capturing insights, critiquing concepts, and creating knowledge products and representations of the problem set's complexities.

> "During the first step of any problem solving effort, you've got to read more than you talk. You must study your head off initially to grasp the essence of the problem."
> (USMC LtCol)

Key Issues and Challenges

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 high functioning 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 teams' thinking. And while discourse does have those impacts when it is done well, it has a number of additional benefits. For example, effective discourse:

- Reveals the assumptions that underlie an argument or concept and reveals where team members may be biased in their current thinking. Also reveals what members might not be thinking about in regards to the problem set.

Website Topics

- 7 topics:
  - Leading planning teams
  - Assembling planning teams
  - Preparing planning teams
  - Building team trust
  - Learning as a team
  - Managing team workflow
  - Managing dynamics
  - Communicating with stakeholders
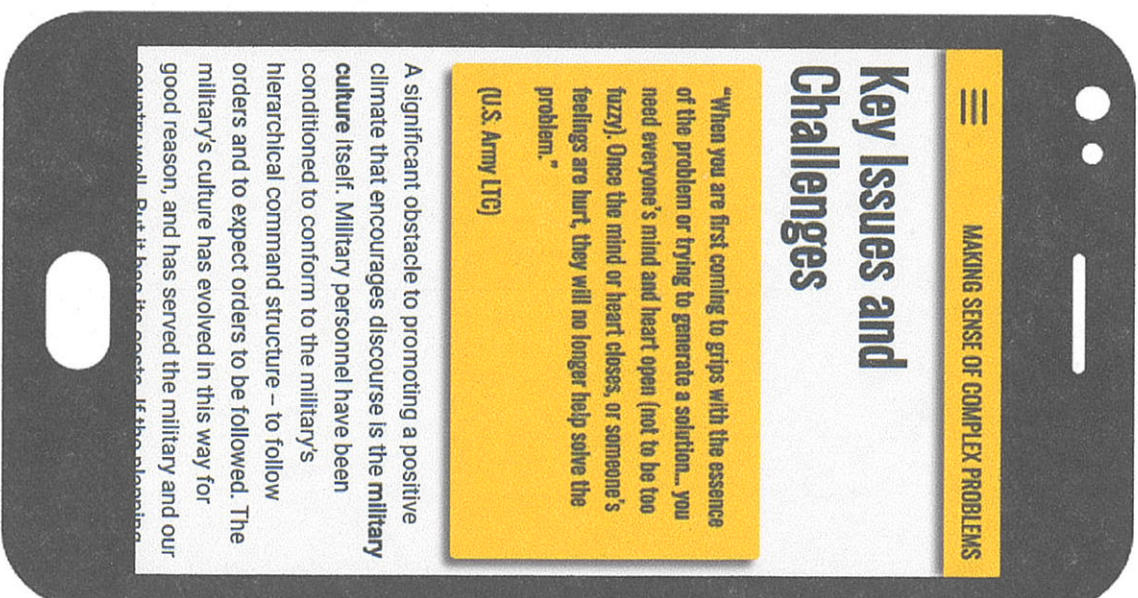- Each topic page contains additional tools and resources.

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.

Visual Communication Resources and Tools

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.

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.

Visual Complexity.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.

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.

The Art of Data Visualization
Description: PBSoftBook digital series that discusses the role of visual strategies to communicate information.

Simplifying Complexity
Description: Ecologist Eric Berlow describes communicate complex systems using simple graphics.

Healthcare on a Napkin
Description: An example slideshow from author Dan Roam demonstrating how to clarify and communicate complex problems using simple drawing tools.

Exercises

Stakeholder Analysis: Stakeholder Grid Template [PDF]
Description: Tool for identifying and understanding key stakeholders.

Suggested Readings

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

Teams: Graphic tools for commitment, innovation, and high performance
Author: D. Sibbet ISBN-10: 111807743X, ISBN-13: 978-111807743 6

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

ADRP 5-0: The operations process [PDF]
Author: Headquarters, Department of the Army

How PowerPoint stifles understanding, creativity, and innovation within your organization [PDF]
Author: B. Zweibelson

Military design in practice: A case from NATO training mission - Afghanistan
Author: B. Zweibelson

A practical guide to design: A way to think about it and a way to do it [PDF]
Author: T. Perez

Essay: The Cognitive style of PowerPoint: Pitching out corrupts within
Author: E. Tufte

Accessing the Website

- Accessible from any device with an internet connection.
- Mobile friendly.

MAKING SENSE OF COMPLEX PROBLEMS

Key Issues and Challenges

"When you are first coming to grips with the essence of the problem or trying to generate a solution... you need everyone's mind and heart open (not to be too fuzzy). Once the mind or heart closes, or someone's feelings are hurt, they will no longer help solve the problem."

(U.S. Army LTG)

A significant 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

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Website URL

https://rdl.train.army.mil/catalog-ws/view/ARI-MSCP/index.html

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13. SUPPLEMENTARY NOTES

14. ABSTRACT

The attached slides provide information on ARI's new "Making Sense of Complex Problems" website. The purpose of the website 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. The website offers practical tips, strategies, and examples designed to support planning teams and their leaders in optimizing team performance and delivering high-impact products to key stakeholders. The tips and strategies provided by the website 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.

15. SUBJECT TERMS

Solving Problems, Complex Problems, Building Teams, Planning Teams, Design Teams, Conceptual Planning

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