



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

## Managing Complex Problems – Info. Brief Learning Sciences Committee

22 August 2019



*The views expressed in this presentation are those of the author and do not reflect the official policy or position of the Department of the Army, DOD, or the U.S. Government.*

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# Purpose and Outline



- Purpose of briefing
  - Spread awareness of ARI self-development product
  - Demonstrate content
  - Connect with interested stakeholders across ArmyU
  
- Outline
  - Design and Access
  - Synthesis of Research Insights
  - Expert Perspectives
  - Exercises and Resources
  - Future Plans
  - Questions



# Design and Access



- User interface design
  - Professional
  - Modern and engaging
  - Mobile friendly
- Target audience for resource
  - Developing junior officers
  - Instructors and facilitators
  - Commanders conducting OPD
- Publically available on Central Army Registry
  - <https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/index.html>





# Synthesis of Research Insights



- Insights from ARI's research programs on Design and Strategic Thinking
- Information about complex problems

- Identification
- Risks of underestimating complexity



<https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/operational.html>

- Core activities for managing complex problems

- Recognize
- Understand
- Collaborate
- Identify Solutions
- Capture and Convey



<https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/managing.html>



# Expert Perspectives

- Interviews with current and retired Army leaders (c. 2015)
  - LTG H.R. McMaster (Director, ARCIC)
  - Dr. Jim Greer, COL(r) (VP, Center for Senior Leadership & Design, Abrams Learning & Information Systems, Inc.)
  - COL Paula Lodi (Commander, 44<sup>th</sup> Medical Brigade)
- Intent
  - Provide operational context
  - Drive home importance of material for developing leaders
  - Topical structure to facilitate exploration
  - <https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/experts.html>





# Exercises and Resources

- Four practical exercises
  - Reflecting on experience
  - Asking powerful questions
  - Telling a story
  - Envisioning potential futures
  - <https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/building.html>
- Tools, Guides, and additional resources
  - <https://rdl.train.army.mil/catalog-ws/view/ARIManagingComplexProblems/downloads.html#additional>





# Future Plans

- Developing expansion of resource
  - New content areas with tools for development
    - Systems thinking
    - Cultural acuity
  - Enhanced interactivity
  - New expert perspectives
- How can you help?
  - Suggested experts
  - Feedback on utility for your organization
- Timeline: 2<sup>nd</sup> Quarter FY21

# Questions?



# Backup Slides

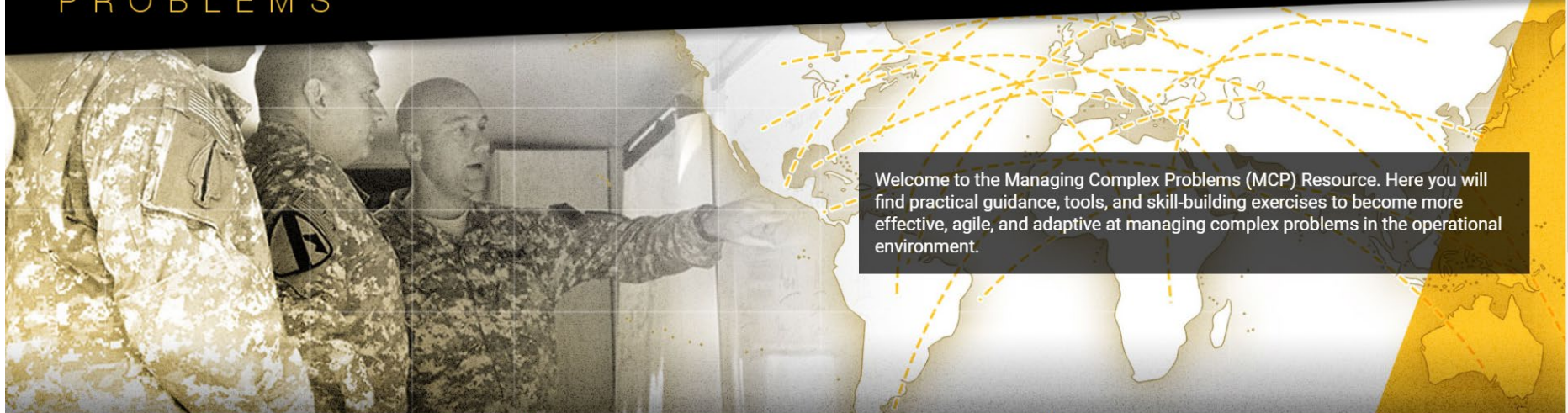




# Synthesis – User Interface

## MANAGING COMPLEX PROBLEMS

ABOUT / SCIENTIFIC EVIDENCE / DOWNLOADS / FAQs / FEEDBACK



Welcome to the Managing Complex Problems (MCP) Resource. Here you will find practical guidance, tools, and skill-building exercises to become more effective, agile, and adaptive at managing complex problems in the operational environment.

### COMPLEX PROBLEMS

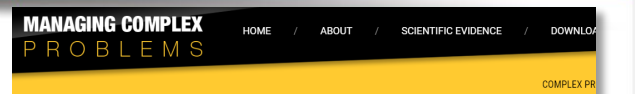
- Complex Problems: The Basics
- Managing Complex Problems: Core Activities

### PRACTICAL GUIDANCE

### BUILDING THINKING SKILLS



U.S. Army Research Institute for the Behavioral & Social Sciences



#### COMPLEX PROBLEMS: THE BASICS

##### Operational Complexity: What is it?

Today's Army faces operational environments that are often volatile and highly dynamic. Globalization is causing us to be linked more closely to - and impacted by - events and situations throughout the world. Many low-intensity conflict situations and problems Army leaders encounter fall within the "gray zone," marked by uncertainty, ambiguity, and levels of complexity that challenge even experienced Army leaders.

These operational environments require that Army leaders have advanced thinking skills that go well beyond technical or tactical proficiency. In order to manage complex challenges and solve problems, Army leaders need to:

- Develop a holistic understanding of multi-dimensional problems
- Understand inter-relationships and connections among people, politics, security, economics, geography, and technology
- Think deeply and critically about challenging situations
- Visualize ways to shape potential future states

##### The Nature of Complex Problems

Complex problems are messy. They involve multiple components that are interconnected and that interact in unexpected ways. Important components of a problem and the relations among them may be difficult to discern and highly fluid. With complex problems, boundaries are unclear, cause-effect relationships are ambiguous, and outcomes are often unpredictable.

The volatility, uncertainty, and ambiguity of today's operational environments add to their complexity and make solutions elusive.

The Arab Spring (2011), the Iraqi insurgency (2003-2006), and global climate change are some examples of complex problems.





# Expert Perspectives – User Interface

## Video Library

Filter on expert OR topic OR exercise

Expert:

- McMaster
- Lodi
- Greer

Topic:

- Understanding and managing complex problems
- Importance of strategic thinking skills for Army leaders
- The role of practice in building thinking skills
- Reflection skills: Importance, challenges, strategies, examples
- Questioning skills: Importance, question types, strategies, examples

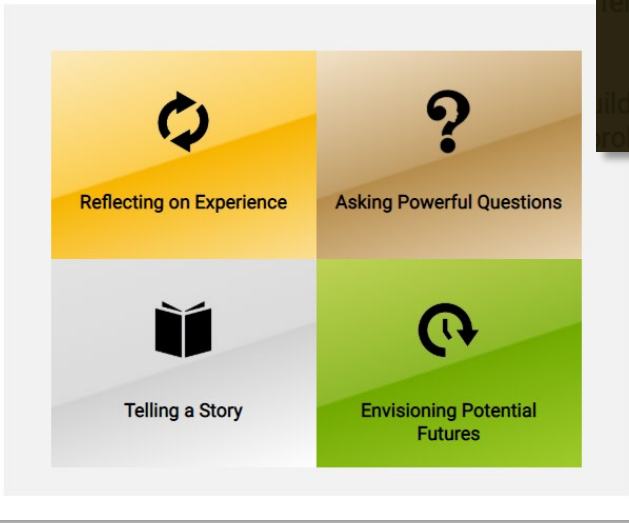
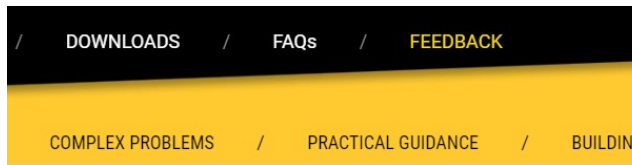
Why reflection is important (1) (McMaster)	Value of "Reflecting on Experience" exercise (McMaster)	Using reflective thinking to establish a common vision (McMaster)	Value of diverse perspectives (McMaster)	Why reflection is important (2) (McMaster)	Overcoming challenges of reflective thinking (McMaster)
How I use reflective thinking in my work (Lodi)	Why it's important to reflect as a group (Lodi)	Why it's important to reflect before and during events, not just after (Lodi)	How reflective thinking has helped me (Lodi)	How we use reflective thinking to learn via AARs (Lodi)	How I use reflective thinking in my work (Greer)
Why reflection is important (1) (Greer)	Why it's important to reflect before and during events (Greer)	The importance of getting to why (Greer)	Why it's important to reflect as a group (Greer)	Why reflection is important (2) (Greer)	Strategies for reflective thinking (Greer)

**Why It's Important To Reflect As A Group** X

▶ 0:00 COL Paula Lodi



# Exercises and Resources – User Interface



**? Asking Powerful Questions: Expand the scope of questions you ask**

The purpose of this exercise is to practice:

- Asking insightful questions to understand complex problems
- Determining how to answer the questions

Asking good questions (and seeking information to answer them) is an opportunity to learn and gain information about a complex problem. It also helps to clarify thinking, explore alternative perspectives about the situation or problem, reveal assumptions, and anticipate how situations might evolve in the future.

**Skills Addressed**

Primary skills:  
Questioning  
Information Gathering

Additional Skills:  
Systems Thinking  
Synthesis  
Self Awareness

**Downloadable/Printable exercise materials**

[Facilitator Guide](#)  
[Supporting Slides](#)  
[Participant Guide](#)  
[Exercise Materials: Images](#)  
[Supplemental Videos](#)

**MANAGING COMPLEX PROBLEMS**

**SCIENTIFIC EVIDENCE**

The U.S. Army Research Institute (ARI) for the Behavioral and Social Sciences has carried out an extensive research program related to managing complex problems. Findings from ARI's program of research are the basis for the material in this Resource.

ARI has published findings from the research program in research reports and products. They are publicly available, and can be obtained directly from [ARI](#) | email: [angela.i.karrasch.civ@mail.mil](mailto:angela.i.karrasch.civ@mail.mil)

See individual reports and products below for more detail on the research behind the MCP Resource.

**Organizational Barriers to Design -**

This report identifies and describes challenges and barriers that have impeded broad acceptance of Army Design Methodology (ADM) by the operational force. The report also provides recommendations and suggestions for addressing organizational barriers, including ways to foster greater engagement with design methodology across the Army.

[Full Report](#)



**REPORT DOCUMENTATION PAGE**

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