ARMY DESIGN METHODOLOGY

COMMANDER'S RESOURCE

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
FEB 2012	**Final**	**00-02-2011 to 00-10-2011**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Army design methodology: Commander's resource	**W5JCQ-11-C-0022**
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER **622785**
6. AUTHOR(S) **Anna Grome ; Beth Crandall; Louise Rasmussen; Heather Wolters**	5d. PROJECT NUMBER **790**
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army Research Institute for the Behavioral and Social Sciences,2511 Jefferson Davis Highway,ATTN: DAPE-ARI-RK,Arlington,VA,22202-3926**	8. PERFORMING ORGANIZATION REPORT NUMBER **; Research Product 2012-01**
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) **U.S. Army Research Institute for the Behavioral and Social Sciences, 2511 Jefferson Davis Highway, Arlington, VA, 22202-3926**	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) **Research Product 2012-01**

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES
Contracting Officer's Representative and Subject Matter POC: Heather Wolters

14. ABSTRACT

With the March 2010 publication of FM 5-0, The Operations Process, the U.S. Army formally introduced Design into its doctrine (Headquarters; Department of the Army, 2010). Design is defined in FM 5-0 as ?a methodology for applying critical and creative thinking to understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them? (p. 3-1). Though many people contend that successful commanders have always performed Design, the codification of Design in doctrine represents a significant organizational change for the Army. Organizational change efforts are often met with resistance, and the intended benefits of the change may go unrealized. The goal of this research product is to provide information about practical application considerations for the Commander when engaging in Design. Content for this research product was developed after a literature review and in-depth interviews with subject-matter experts to identify obstacles to adoption of Design. A number of barriers have the potential to create significant impediments to the integration of Design, including: terminology and language barriers, conceptual barriers, organizational culture barriers, command-level barriers, and applications barriers. This resource attempts to address several of the identified barriers.

15. SUBJECT TERMS **design, Army Design Methodology, planning, conceptual planning, operations process, discourse, critical thinking, systems thinking, complex and ill-structured problems**					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**84**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

Produced By:

United States Army
School of Advanced Military Studies

In Partnership With:

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Behavioral and Social Sciences
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Acknowledgement

The authors would like to thank instructors from the School of Advanced Military Studies (SAMS) and the Command and General Staff School (CGSS), as well as COL Grigsby (former Director of SAMS) and Dr. Scott Gorman, who provided their knowledge and expertise related to the instruction of Army Design Methodology. The authors would like to also thank all those who participated in the interviews and shared their experiences and valuable perspectives related to Design.

Table of Contents

INT

Army Design Methodology: What and Why

In today's operational environments, the U.S. Army is facing a range of problems and mission sets that are arguably more varied and complex than previously encountered. Forces face an array of demands that encompass geo-political, social, cultural, and military factors that interact in unpredictable ways.

The inherent complexity of today's operations has underscored the need for the Army to expand beyond its traditional approach to operational planning. In March 2010 in FM 5-0: *The Operations Process*, the Army incorporated the concept of Design[1] into doctrine. This addition emphasized the importance of developing a deep and nuanced appreciation of complex problems and visualizing ways to solve them, prior to conducting detailed planning. The Army Design Methodology (ADM) offers Commanders and planning staff a tool for the conceptual component of an integrated planning process. It leverages critical thinking, innovation, discourse, and reflective practice to ask, "What problem are we trying to solve?"

[1] The terminology associated with Design continues to evolve. The Army will be adopting the term "Army Design Methodology" in lieu of the term "Design" in forthcoming revisions of doctrine. However, many of the sources for this resource were unaware of this change or have not yet adopted that terminology. The literature reviewed and the military personnel interviewed as part of the research effort that informed this resource overwhelmingly refer to "Design." Thus, in places where direct quotes are offered, or when describing Design Theory, the terminology of "Design" is maintained. Elsewhere, the phrase "Army Design Methodology" (ADM) is used in order to be consistent with the Army's change in terminology.

Views about Design

Since the introduction of Design into doctrine, there has been spirited debate on the topic. There is a diversity of views and perceptions about Design. Discourse continues regarding what Design is, whether it is new or simply an expanded version of mission analysis, where and how it should fit within existing doctrinal processes, whether it should be treated as a philosophy, or mindset, or be codified and structured into a replicable process.

Despite the differing viewpoints, the debate has also revealed areas of convergence which are important to acknowledge and build upon. For example, most people agree that:

- There is a need for a different type of thinking that allows for meaningful insights into unfamiliar, dynamic, and complex situations.
- There is value in approaching operational problems from multiple perspectives in order to develop holistic understanding.
- There is a need for continuous reflection, learning, and reframing of the problem space based on new information and changes in the environment.
- Defaulting solely to traditional, linear, and reductionist detailed planning processes is not sufficient for the types of complex challenges that U.S. Forces face in operational environments.
- ADM offers something qualitatively different than traditional planning methods in its emphasis on systems thinking and holistic understanding.
- ADM should not be separated from planning. It represents the conceptual component of planning, and should be integrated with (and support) detailed planning.
- ADM has the potential to provide important benefits for Commanders and their staffs, including avoidance of unintended second- or third-order effects that can result from taking action without a fully-developed understanding of key interdependencies in the operational environment.

- ADM supports the notion that to fully understand a system you have to interact with it and then assess in an iterative manner.
- ADM should always be grounded in reality to produce an executable plan. Understanding alone is not enough; the products from ADM must connect to detailed plans.

There is also general agreement that in order for Commanders and staffs to embed ADM into operations, there is a need for examples of what ADM looks like in the real world, as well as practical tips and strategies for implementing ADM. In other words, *"What does this all mean to the planner in the tent in the desert somewhere?"*

This Resource

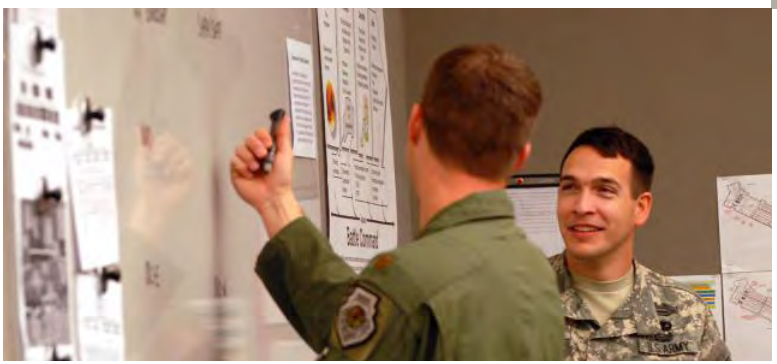
Purpose

This resource is intended to help bridge the gap from Design theory and classroom instruction to application of ADM in the field. It offers practical suggestions, strategies, tips and examples to support incorporation of ADM into operations.

This resource is not a prescriptive how-to guide or procedures manual. There is no standard process, no single way, to carry out the activities underpinning ADM. ADM is intended to be flexible, adaptive, creative, emergent and responsive to a particular problem and environment. ADM can take many forms, follow a variety of different processes, and produce a range of outcomes depending on a host of factors: the operational setting, timeframe, team composition, level of Commander involvement, and level of formal education in Design theory.

While there is no single way to apply ADM, there are **common practical challenges** that Commanders and planning staff encounter when they seek to apply ADM principles and methods to "messy" real-world settings. For the potential benefits of ADM to be realized, Commanders and planning team leaders need support in anticipating, recognizing, and managing these challenges.

In this resource, practical challenges of applying ADM in the field are provided, along with ideas and practical suggestions for managing them.



Basis of Resource: Where does the information come from?

This resource is based on findings from in-depth interviews with experienced planners and Commanders. Interview participants included students and instructors of Design theory. Many of the interviewees had experience applying elements of ADM in the field.[2]

Who Should Use the Resource?

The ADM Resource is intended to support Commanders and planners who will be leading ADM efforts in operational settings, as well as planners who will be part of teams applying ADM.

[2] The interviews were part of a larger research effort sponsored by the Army Research Institute for the Behavioral and Social Sciences, aimed at identifying barriers to incorporating ADM into Army operations. For a summary of the barriers identified, see the Appendix.

How the Resource is Organized

The resource is organized in three major sections:

Section 1: Practical Challenges in Implementing ADM

The interviews revealed a set of issues and challenges that Commanders and their staffs encounter when applying ADM. For each topic, a general description is provided, the challenges are identified, and tips and strategies are offered for managing the challenges. Examples and quotes drawn from the interviews are also provided.

Section 2: ADM Examples

Examples and incidents described during the interviews are provided to illustrate the range of processes and outcomes of ADM.

Section 3: Additional Resources

Suggestions for additional readings and information sources about ADM and related topics are provided.

Appendix:

A summary of organizational barriers to integrating ADM into Army operations is provided.

SECTION 1

Practical Challenges in Implementing ADM

The Commanders and planners interviewed for this effort identified the following issues and challenges they encountered when engaging in Design efforts. The challenges are organized according to two principal phases: Preparing for ADM and Executing ADM.

Preparing for ADM

- Recognizing when to apply ADM
- Determining team composition
- Determining necessary resources and materials
- Determining the level and nature of commander involvement
- Determining whether (and how) to structure the activity

Executing ADM

- Introducing and framing ADM
- Facilitating discourse
- Determining what to include and study
- Determining how to capture and communicate insights

1A

"Sometimes Design-type thinking is appropriate and sometimes it is not. The Commander has to sort out: Is this the kind of problem that it's going to be appropriate for?"
(Logistics Instructor, CGSC)

"When is Design appropriate? …It has nothing to do with the size of the unit. It has to do with the nature of the problem. Does it lend itself to analysis? Or is it so obvious you know what to do intuitively? Or is it one that is more messy and requires multiple people discussing it?"
(Senior mentor in Unified Quest; Instructor, USMC Command and Staff College)

"…because I've never had this experience before…never operated in this environment before…that's a trigger that I should sit back and develop my understanding more effectively, and more completely before I even attempt to describe my visualization to my staff."
(Tactics Instructor, CGSC)

A

Recognizing When to Apply ADM

Overview

One of the challenges in applying ADM in the field is recognizing the situations and problem sets where the activity might be appropriate. ADM has been described as useful for problems that are ill-structured, complex, or wicked. But, how does one recognize these types of problems in an operational setting?

ADM Triggers

Successful Commanders are adept at recognizing the triggers, cues, and characteristics of the situation or problem that indicate that ADM might be valuable. In some cases, it is a sense of surprise or confusion that triggers the recognition that a deeper understanding is needed. In other cases, it is a realization that actions are not achieving expected impacts, or are having unanticipated second- and third-order effects.

Strategies/Tips: Some of the questions you might consider in assessing whether ADM might be appropriate are provided here. Answers to these questions may indicate that stepping back and framing the problem space is necessary before engaging in detailed planning.

- ✓ Do we know enough about the situation to move forward in a meaningful way? Is a course of action clear and evident?
- ✓ Are the actions we are taking having unexpected and/or surprising effects?
- ✓ Is the problem so familiar and solution so obvious that we already know what to do? Or is it one that is unfamiliar and would benefit from having multiple people discussing it?
- ✓ Do we know what end-state we are trying to achieve? Or is the desired end-state, itself, unclear?
- ✓ Are actions and techniques that were originally effective now falling short of achieving the desired impact?

It is important to recognize that ADM is not intended to be conducted in isolation of detailed planning. As part of the integrated planning process, the use of ADM should inform, and be informed by, the detailed planning component. Planners need to understand and resolve problems at a conceptual level (i.e., through ADM), before figuring out the details. At the same time, details and practical constraints need to be considered in the context of ADM. Separating ADM from detailed planning could lead to insights or solutions that are not actionable, or to execution of detailed plans that solve the wrong problems.

We started realizing that the same techniques we were applying previously wouldn't sustain security. We just weren't getting there using our standard processes. Other things needed to be taken into consideration. I guess that was our 'aha' moment.[3]
(Army Strategist; Instructor, CGSC)

We were facing some issues about how to transition from a military-led mission to a civilian-led mission in Iraq. We were getting ready to take out many of the military enablers. All the things that the military was doing—providing medical support, providing mail service, delivering food and fuel—we were asking the State Department to take over. Iraq has relied on DOD support for so long. You start pulling these things out of the mix and realize, 'How are we really going to do this? Who will run the hospital in Iraq when the military is not there? What can we do? And what are the problems we need to focus on, given the current constraints and within the fiscal environment? ' That is what we faced.[4]
(Strategic planner, J5; SAMS graduate)

[3] For more detail, see Section 2: "Design During the Sunni Awakening."

[4] For more detail, see Section 2: "Mapping out the Mess."

1

B

"In Design, a lot boils down to human dynamics. You need the right personalities for honest discourse to happen; otherwise people put up barriers."
(Infantry Officer, SAMS graduate)

"I tried to pick people who had open minds. What we ran into was that some people don't have room for new ideas. They think they know everything. Those are the type of people you don't want in your Design group. Trying to find the right people was tough sometimes."
(Operational Planner, SAMS graduate)

B

Determining Team Composition

Overview

ADM is a team activity. The nature of problem sets appropriate for ADM are far too complex for any single individual to make sense of them. The activity relies on leveraging multiple, diverse perspectives and knowledge to construct a holistic understanding of a problem space.

As in other fields, teams offer considerable advantages over individual endeavors. But they also pose an array of challenges. The interaction of personalities can lead to a complex set of team dynamics that require attention and energy to manage in order to achieve a quality outcome.

Thus, building the team is a significant component of successful ADM. Interviewees described important decisions related to organizing the team. Some considerations that interviewees described include:

- Skills and characteristics of potential team members
- Applying skills to different functions
- Size of the team
- Who to bring in from outside the planning staff
- What roles are needed

Strategies/Tips:

Skills and Characteristics of Team Members

1

B

Experienced Commanders and planners described a set of characteristics they seek when organizing a team for ADM. While some of these characteristics are likely to be desirable for most team activities, they hold particular importance for the activities of discourse, critical and divergent thinking, perspective taking, and reflective practice that underlie ADM. They include:

- ✓ Having an open mind and room for new ideas
- ✓ Having an inquisitive mindset; being curious and eager for knowledge
- ✓ Being comfortable with ambiguity
- ✓ Possessing creative-and innovative-thinking skills
- ✓ Being willing to listen to others and valuing differing points of view
- ✓ Being able to "decenter" and take different perspectives
- ✓ Possessing an investigative mindset and investigative skills
- ✓ Having formal training in ADM and the philosophy and theory that underpin it
- ✓ Being experts in their fields

Applying Skill Sets to Different Functions

Interviewees also described the importance of recognizing how to leverage and apply team member skill sets in non-traditional ways. For example, an interviewee described leveraging skills of field artillery officers who were well-trained in targeting, and applying those skills to look at non-lethal targets. Being aware of how staff skill sets might be applied to manage functions outside of traditional roles can be particularly valuable for ADM.

Size of the Team

Determining the size of the team requires a fine balance between a team that is big enough to provide diversity of perspective, but small enough to be productive. "If you get too many people involved, it starts confusing the understanding you're trying to develop" (Operational Planner, USMC). A rule of thumb offered by experienced Commanders and planners is to include six to nine people on the core team, and bring in other subject-matter experts (SMEs) as needed.

1 B

"Drawing in people from outside the military into this process is important. Almost by definition, it can't be just pure military."
(Senior Mentor, Unified Quest; Instructor, USMC Command and Staff College)

"It's one thing to understand you need a different perspective. But getting that other perspective into the group is hard. Getting an Afghan into our Design group on the compound took an act of God. We did get them into our group, but not permanently."
(Strategic Planner, SAMS graduate)

Who to Include from Outside the Planning Staff

In many cases, members of the team engaging in ADM will come from the planning staff. However, those who have applied ADM in the field describe the importance of including people from outside the existing planning staff, who have different perspectives and/or specialized knowledge and expertise.

The optimal team composition will depend on the context, the nature of the problem space, and the gaps in knowledge and understanding that are identified.

In many cases, it is unknown at the outset of the effort who will be the appropriate individuals. It is only after engaging with the problem space that the Commander and planning staff may recognize the needs for particular areas of expertise.

"We were in an agricultural area. I don't know anything about agriculture. We'd use the Department of Agricultural representative to help us look at canal systems because there was a huge water issue. We were next to the Tigris River, but people were starving for water. We didn't know why. The agricultural representative came in and helped us understand the canal systems, how a canal undulates, how it should work. He was an asset we would request."
(Strategist; Instructor, CGSC)

1

B

"On a Design team you need to have a 'creative.' That doesn't mean they have to be in charge. But you need a couple dreamers in this group."
(Infantry Officer, SAMS graduate)

"Graphical representation is a critical piece. Not a lot of people can do that well. Once you start putting a picture up there it starts to capture everyone and create a life of its own. The guy who creates a picture has significant influence over the eventual Design that comes up. So you need to think carefully about who does that..."
(Unified Quest participant; Doctrine Author, USMC)

What roles are needed

As the team forms, it can also be useful to consider the roles that team members may hold. While the Commander will decide which roles are most necessary, some have found it helpful to assign roles such as:

- ✓ Someone to capture the discussion
- ✓ Someone to capture ideas in visual form—i.e., develop graphics
- ✓ Someone to think about and develop metrics—i.e., how you might test the insights you develop
- ✓ Someone to lead and monitor the team process
- ✓ Someone to play 'devil's advocate,' with the specific role of questioning assumptions
- ✓ Someone who manages information on current operational constraints and evaluates the feasibility of the design concept that emerges

C

Determining Whether and How to Structure the Activity

1

Overview

C

One of the issues you might consider is whether to structure the ADM activity in some way. There are a variety of views as to whether the activity should be structured at all, given that ADM by its nature is intended to be unbounded, flexible, and emergent. Some contend that prescribing a set of steps is counter to the approach to critical thinking that ADM promotes.

Although many of the Commanders and planners interviewed agree with that notion, they also report that teams engaging in ADM need a way to get started. Therefore, it can be helpful to offer a flexible framework as a starting point for discussion.

Strategies/Tips

The Commander (or other individual leading ADM) can provide important support for the activity by making available a flexible structure for the team's discourse.

Pages 26-27 show three frameworks for organizing ADM. The frameworks provide sets of questions or "periods of discourse" that are useful for promoting inquiry. The questions generate curiosity, stimulate learning, encourage thinking holistically and critically, and provide a starting point for discourse.

"There is a reluctance—a danger—that Design might turn into another checklist. Some want to keep it more free-flowing and less structured to encourage creative thinking. I agree. But that major in the field needs a heuristic, a tool. So there is a tension between those two things: keeping it non-structured, but giving people something to work with."
(Design Instructor, CGSC)

"Because it's wicked you can't rely on one way of doing it."
(Logistics Instructor, CGSC)

"Design is about asking questions."
(Design Instructor, CGSC)

Framework A

This framework involves organizing the session into four periods of discourse[5]:

- ✓ Impressions of the mess—What is going on in this situation? And what are the critical factors involved?
- ✓ Identifying and structuring the problem—What is the problem?
- ✓ Crossing the boundary into systems thinking—Now that we have identified the problem, can we create a system model out of that?
- ✓ Develop a solution for solving the problem—Where can we "poke" that system? Where can we apply energy to move it in the intended direction?

Framework B

Organizing the activity into four areas of exploration.[6]

- ✓ What is going on in the environment?
- ✓ What is our desired end-state?
- ✓ What is preventing us from achieving the desired end-state?
- ✓ Where and how must we get in the environment to achieve our end-state?

[5]Adapted from interview with John Schmitt (USMC Maj. Ret.)

[6]Adapted from Perez, T. (2011, March-Apr). A Practical Guide to Design: A way to think about it, and a way to do it. *Military Review*, 41-51.

Framework C

Organizing the activity into three phases.[7]

- ✓ Framing the operational environment—What is the nature of the situation? Who are the relevant actors?
- ✓ Framing the problem—What is the problem? What are the areas of tension? What are the goals and motivations among the relevant actors? And what is the relationship among them?
- ✓ Considering an operational approach—What approach will solve the problem? How can the situation be transformed toward the desired end state?

Importantly, the discourse and learning that occurs around each of these questions or periods of discourse will not (and should not) proceed in a step-by-step, linear way. The most productive discussions are iterative and recursive, and inform and build upon one another. The products that come from these discussions will feed the mission analysis, the intelligence preparation of the battlefield, the initial reconnaissance, and the Commander's critical information requirements.

"Simplicity is a virtue. For a practitioner in the field, the 4 questions create a frame that he can work with. And it is entirely consistent with doctrine. It makes sure they don't get lost. They get you going. You can answer these questions graphically and narratively."
(Design Instructor, CGSC)

[7]Adapted from FM 5-0. *The Operations Process.*

D

Determining Level and Nature of Commander Involvement

Overview

Planning is Commander led. The Commander's involvement is central to successful ADM. However, the multiple competing responsibilities and demands on a Commander's time may pose significant barriers to engagement in ADM. Something to consider before embarking on ADM is how to manage your own level of involvement, and the benefits and risks associated with varying levels of participation.

"If the Commander doesn't have buy-in to Design, and if it's not in-line with his intent, then it's probably a wasted effort."
(Instructor, USMC)

Models of Commander Involvement
Experienced Commanders and planners described three different models that reflect varying levels of Commander involvement:

1. Commander leads the team, facilitates the discourse, and is engaged throughout the effort;
2. Commander requests and sanctions the activity, but is disengaged from the process, except perhaps at the start;
3. Commander comes in and out of the process; is involved periodically, at various points throughout the effort.

Risks
It is important to recognize the risks of both limited Commander involvement in ADM, and of over-involvement. Both can hamper the efforts to break assumptions and refine understanding, and can prevent the Commander and his/her staff from achieving the maximum potential of ADM.

"I've seen plenty of issues arise where the Commander either wasn't involved in the process or was involved only up-front. When you don't have that engagement throughout the process, you can easily get sidetracked where you end up with a COA you selected and figure out it doesn't work because the Commander is looking at it at the back-end of the process."
(Operational Planner, SAMS graduate)

"Commanders may have allocated resources to Design efforts. But at the end of the day, they weren't involved. That was the key reason the Design efforts failed."
(Operational Planner, SAMS graduate)

"The Commanding General wasn't all that involved in the effort. Because he wasn't involved, he totally missed out on the logic behind our efforts. He was totally disconnected. So it was hard to convince him at the end."
(Operational Planner, SAMS graduate)

Risks of Limited Involvement. Limited Commander engagement poses a risk that the potential benefits of ADM will go unrealized, and outcomes will have limited impact. This can happen because Commanders who are not engaged in the process can be disconnected from the logic behind the understanding developed during ADM. Their disconnection may make it much more difficult to realize the legitimacy of the insights and outcomes that emerge. It can be challenging for the team to capture and communicate the logic and shared meaning that builds over the course of ADM in a way that conveys the richness and nuance of the dialogue to the Commander.

Risks of Too Much Involvement. Too much involvement from the Commander can also pose risk to effective ADM. An important issue to recognize is the influence the Commander has over his/her staff. The commander has the potential to dampen discourse by providing too many ideas and interpretations upfront. A strategy employed by some Commanders who have been successful in applying ADM is to reserve opinions up front and refrain from advocating a particular viewpoint.

The thing I have seen that has the potential to inhibit discourse is when a Commander provides so much direction up front that everyone else just says, 'Okay, I agree with that.' He has a lot of good ideas in his head… But he has the responsibility in leading discourse to reserve that information upfront.
(Operational Planner, USMC)

1

"I would advocate the Commander should be involved in every step of the effort. But at least at various points as you struggle through things. Maybe get in-process reviews.Offer some kind of communication."
(Strategic Planner, SAMS graduate)

D

"We had our boss come down at the beginning and say one more time what he was looking for so that we all clearly understood what he wanted us to explore. And then he said, "if you reach a point where you kind of hit the wall, and need me to come down, I'll do that." And we did, we kind of reached a point where we were like, "you know what, we need to bounce this off of him, and see what his thoughts are on this." And we brought him back down and identified the issue and then moved forward."
(Strategic Planner, J5; SAMS graduate)

Strategies/Tips:

As Commander, you may want to consider the following questions before embarking on ADM:

- ✓ What will the level (and nature of) your involvement be in the activity?
- ✓ If you cannot be involved in all aspects, what are the critical parts to be involved in? Where can you have the greatest impact?
- ✓ If you cannot be involved in all aspects, how do you want the team to communicate their logic and insights to you? How frequently? And in what format? (Do you want a set of PowerPoint slides? A narrative description? A graphic? An email with bullet points? A combination of these formats?)

As you determine the answers to these questions, it will be helpful to communicate your expectations to those on your staff who are engaging in ADM.

E

Determining the Resources Needed

1

Overview

One of the issues to consider in preparing for ADM is the types of resources the activity will require. Resource considerations include physical space for the team to engage in ADM and materials needed for communicating and representing ideas.

E

Graphical depiction is a key element of ADM, as it allows the team to visualize concepts and depict relationships and interdependencies. The ability to share information across the team, and to manipulate and structure information in different ways as discourse proceeds is fundamental to ADM.

Strategies/Tips

It is helpful to have a space that is dedicated to the ADM effort. Particularly in situations where the effort will span several days, it is recommended that a room be made available where the team can leave drawings and artifacts displayed.

The room should have ample wall space for posting work products. It should also be large enough to enable small group work, if the team determines that it would be beneficial to have smaller break-out groups working on particular aspects of the problem set.

"It is important to consider how you set up a room so that you can effectively sit around and think about things. People don't think about the physical environment enough. That really does impact your thinking."
(Strategic Planner, J5; SAMS graduate)

Because the team needs to share and display information, it is necessary that the team have access to materials such as whiteboards and butcher block paper for drawing, structuring, and displaying information.

Specifically, the materials you may want to consider having available for ADM include:

- ✓ Whiteboards (multiple if possible)
- ✓ Butcher block paper or flip charts
- ✓ Markers and other drawing tools, such as colored pens or pencils
- ✓ Post-it notes of varying sizes and colors
- ✓ Notepads and sketch paper for individual use
- ✓ Laptop computer
- ✓ Projector
- ✓ Audio recorder for capturing the discussion
- ✓ Camera
- ✓ Maps
- ✓ Overlays
- ✓ Sit reps
- ✓ Command Post of the Future (CPOF) products

"We wanted a room that had a lot of whiteboards, where we could walk around if we wanted to….The night before I packed a bag at work of markers, notepads, pencils, and folders, because you just don't know how it's going to take shape once you get there."
(Strategic Planner, J5; SAMS graduate)

F

Introducing and Framing ADM

1

Overview

The manner in which Commanders initiate ADM has a direct impact on how the team engages in the task, and what they produce. Two important aspects of getting ADM started are:

- Setting the tone for interactions
- Defining the ADM activity

F

Setting the Tone

Effective ADM depends on team members who are comfortable sharing and critiquing ideas. The Commander sets a tone that will encourage or dampen discourse. Creating a climate that supports the energetic exchange of ideas requires open communication between the Commander and his/her staff, and trust that individuals will not be reprimanded for voicing divergent views. It is up to the Commander to convey the expectation that the team will question assumptions, push back on ideas, and collaborate on developing solutions.

Defining the Design Activity:
Providing an explicit statement regarding your expectations for the activity will provide important guidance for the team. Your statement might include:

- Your goals
- The format of the output and products you anticipate
- Suggestions for how the team might approach the activity
- Your expectations regarding how team members will interact and work together
- Resources and suggestions for SMEs to contact
- What you anticipate your involvement will be, so team members know how and when to bring you into the process

"For Design to work, you need higher authority willing to give you leeway to do it."
(Logistics Instructor, CGSC)

"Commanders set the tone for critical thinking. He needs to be willing to entertain input, be open to feedback, be humble enough to know that he doesn't know everything. Surround yourself with people who know more about certain things than you do. Lean on them to fill in gaps in your own knowledge."
(Tactics Instructor, CGSC)

1

"What I have done is tried to communicate to them that Design thinking has always existed. We're just calling it something new now. And I think one of the easiest ways for people to grasp Design is to call it what we call it in our doctrine - 'conceptual planning'."
(Commanding General, USMC)

F

"It's a human organization. Relationships have to be established just like any other organization. If the relationship with the Commander hasn't been established, he may not give legitimacy to the ideas. The onus is on us, as leaders, to establish those relationships so the communication can flow. As a Commander, it's incumbent on us to learn about our people."
(Strategist; Instructor, CGSC)

Strategies/Tips:

- ✓ It can be helpful to provide the key questions or hypotheses you want to explore.
- ✓ It can be helpful to provide read-ahead materials to get people up to speed about ADM.
- ✓ It may be helpful to encourage people to acknowledge the typical ways in which they think and approach planning, and to point out ways in which ADM is a different approach.
- ✓ Some have found it helpful to start by telling the team "no putting pen to paper" to encourage initial brainstorming and idea exchange.
- ✓ Some have found it helpful to set some explicit boundaries, assumptions, or constraints on the activity to prevent teams from getting caught in endless "what-iffing."
- ✓ It is helpful to be aware of one's own typical leadership style, and how it may impact the desired climate of discourse and respectful critique. Are your own habits-of-mind or interactive style likely to interfere with the ADM?
- ✓ It is helpful to be aware of some of the organizational barriers to implementing ADM so that you can anticipate and manage them. For an overview of these barriers, see the Appendix of this resource.

G

Facilitating Discourse

Overview:

1

A key skill for leading ADM is effective facilitation of group discussion, critical thinking, and collaborative effort. The ability to work with disparate individuals and harness their cognitive abilities toward an effective outcome requires skill and discipline. However, few military leaders receive specific training and instruction in facilitating group processes.

G

The linear, analytic nature of detailed planning lends itself to individual task performance on particular, well-defined task components. ADM does not. ADM requires multiple perspectives, and benefits from the interactions and dialogue among diverse team members.

Challenges you may encounter when facilitating discourse:

- Getting the discussion started and moving in a meaningful direction.
- Developing effective open-ended questions to stimulate thinking.
- Helping people "break their frame" and take differing perspectives on the problem or issue.
- Guiding the discourse without limiting it; allowing productive discussion to proceed while redirecting discussion that is unfocused and rambling.
- Recognizing when a team is down in the weeds and helping to redirect their effort.

- Managing team members who are disruptive, dismissive, or who dominate conversation.
- Balancing input across the team, and encouraging all members to engage in the dialogue.
- Helping the team to (eventually) converge and reach consensus.

"Design assumes a certain level of complexity, which means that you can't expect one person to understand everything. Therefore you have to leverage the collective intellect, and the way you're able to do that is critical."
(Senior Mentor, United Quest, Doctrine Writer)

"It's a skill to facilitate a useful session of discourse. Doing that well is a talent. There are some character traits that stand in the way. It's difficult to be able to work the crowd, to organize it, and have discipline and yet maintain flexibility within that process. We don't teach anyone those things. There are workshops in the civilian world. But we don't teach taking a group of disparate individuals, and harnessing their cognitive skills through a disciplined process."
(Planner, USMC)

Strategies/Tips

Strategies for facilitating effective discourse within ADM that were reported by interviewees include the following:

- ✓ Open with the question: 'What problem are we trying to solve?' to encourage the team to think and discuss as the first step.
- ✓ Discourage the team from jumping right to written solutions; suggest 'no putting pen to paper' for a period of time.
- ✓ Reserve your own information and ideas early on, so others are encouraged to speak up.
- ✓ Refrain from advocating a position, so as not to steer the discussion.
- ✓ Play the role of devil's advocate; demonstrate how to push back on others' ideas in ways that are productive and respectful.
- ✓ Ask probing questions; elicit the assessment and reasoning behind judgments and decisions; ask 'why?'
- ✓ Ask open-ended rather than yes/no questions.
- ✓ A framework that can be helpful is to organize the ADM around four overarching questions (see "Determining Whether and How to Structure ADM").

"Some people on the team had preconceived ideas of what the strategy was going to be. They wanted to start writing the strategy. And my comment was, "anybody who puts any words to paper right now is off the team because you have a preconceived notion of a problem that we do not yet understand." I said 'we need to look at the challenges we face'."
(Commanding General, USMC)

"What I was presenting to the team is our need to think our way through this problem. What I wanted them to do was get their heads in the problem and not in the terminology or concepts. I had them read John Schmitt's[8] paper because it was an indicator of how we were going to do this."
(Commanding General, USMC)

[8] Schmitt, J. F. (2006). *A systemic concept for operational design.* from http://www.au.af.mil/au/awc/awcgate/usmc/mcwl_schmitt_op_design.pdf.

H

Determining What To Include

Overview

1

The complexity of social and geo-political issues means nearly every topic one can imagine is connected and relevant in some way to an ADM effort. However, given real-world constraints in time and personnel, it is necessary to limit the activity somehow. Moreover, in the absence of any boundaries, planning teams may find it difficult to move the ADM effort in productive directions.

H

The challenge is balancing the open-ended, creative problem space that ADM requires with the practical considerations that characterize operational settings. The Commander has a critical role in determining what the balance can and should be. The Commander's guidance and involvement over the course of the ADM activity can provide important support for the team's efforts to move the activity forward.

Strategies/Tips

- ✓ The Commander's initial guidance to the team (see "Introducing and Framing ADM"), including ideas about topics to investigate and SMEs to bring into the effort, provides a starting point for the team.
- ✓ Periodic check-ins over the course of the ADM activity, or making oneself available in case the team requires clarification, can provide opportunities for the team to recalibrate with the Commander.

It wasn't that we had to "figure out Afghanistan", but we felt we had to do that to understand the problem. We even needed to understand Pakistan, China, and Russia in order to understand. We joked that we wanted to throw in Jupiter too. If you deal with a complex problem, you want to include everything because there's always an indirect effect. You can't leave Africa out because there's an indirect influence between the two. So it was difficult to figure out what we actually needed to study. We started big, and then got smaller later. We started with Afghanistan and then drilled down to specific regions."
(Strategic Planner, SAMS graduate)

I

Capturing and Communicating Key Insights

Overview

1

Ultimately, the value of ADM depends on whether the team is able to effectively convey newly developed understanding to the Commander and others outside the design activity. Communicating the insights and knowledge that emerge from ADM is a major challenge.

I

As central as discourse, critique, and dialogue are to ADM, capturing emerging ideas in written and graphical formats is equally important. Interim knowledge products—notes, sketches, idea maps, power points slides, and so forth—that teams produce over the course of ADM can provide an important audit trail for how insights and recommendations were developed. However, those interim products are often not very meaningful for anyone who was not part of the ongoing design activity. It is critical to keep assumptions explicit. As the activity nears completion there is a critical task of developing documents, briefing slides, and other representations that will communicate key insights and assumptions to an external audience.

"A challenge is: how do you capture, represent, and transfer the systemic understanding developed during the iterative Design process in a way that is useful?"
(Participant in United Quest; Doctrine author, USMC)

"You have to capture the knowledge, and that was immensely difficult. We drew a spaghetti diagram. It was awful. If you pulled it out today, we could explain it, but you couldn't show it to someone else."
(Strategic Planner, SAMS graduate)

"There are some times when we've been told, 'this is a thought that the Chairman might like.' And we would tweak it and clean it up. A lot of times, slides are just not appropriate for that level, certainly not the Chairman's level. The time it would take to explain a diagram or picture is just not worth his time. You have to find other ways to clearly articulate that. That's the art behind what you do with Design."
(Strategic Planner, J5; SAMS graduate)

Strategies/Tips

- ✓ Commanders who convey their preferences for information delivery provide a helpful target for the team's final products.
- ✓ Recognize the difference between interim and final knowledge products; allocate time and resources for developing final products as part of ADM.
- ✓ Consider developing a final product that uses both text and graphical images to convey insights and rationale.

Some planning teams find it helpful to use a particular representation format from the very beginning of the ADM activity, revising and adjusting content over the course of ADM. For example, some have suggested using a set of PowerPoint slides labeled "environmental frame," "problem frame," "courses of action," and "approach." However, it is important to recognize that preselected formats may constrain creativity, and should not be the only format used. Most importantly, the Design team must understand that what they produce has to get translated into Commander's planning guidance and Commander's critical information requirements.


U.S. ARMY

Examples from the Field

ADM can be used for a variety of problem sets, follow a variety of different processes, and produce a range of outcomes. There is no single way to conduct ADM. The purpose of this section is to offer some examples of what ADM can look like in the field, and provide context for some of the challenges described in this Resource.

2 Overview of Examples

- "Design During the Sunni Awakening" (S3 perspective)
- "Design over Dinner" (CJ5 Strategic Planner perspective)
- "Mapping out the Mess" (J5 Strategic Planner perspective)
- "Illumination in Vietnam" (Commander perspective)
- "Ongoing Design" (Strategic Planner perspective)

1 Example:

"Design During the Sunni Awakening"

(S3 perspective)

The Context

During the Sunni Awakening, we did Design but we didn't call it Design. We started realizing that the same techniques we were applying previously wouldn't sustain security. We just weren't getting there using our standard process. That was our 'aha' moment. There was still conflict occurring, but it wasn't insurgency conflict. It was regular social conflict. A lot of the security structures that would be in a normal society (such as police forces) weren't there.

Understanding the Problem

We used the reflective-practitioner model where you look at a scenario you have never seen before, start applying action to it, and ask, 'is it working or is it not?' We got to the new problem statement through many engagements. We would make the decision to engage, get feedback, and then adjust based on that.

There was one particular clan further south (many of whom had American blood on their hands), and we were told by the previous unit: 'Isolate them. Don't engage. Keep them compartmentalized.' But we realized we couldn't secure the area unless we engaged with them. So we started making lots of engagements. We had to change our paradigm of who we were going to deal with. We knew we needed to do this in order to successfully accomplish our mission.

Re-Organizing the Staff and Re-focusing Intel Collection

When we realized we had to expand the way we think, it manifested in a change to the staff structure. In the beginning, our staff structure looked like any other staff structure geared toward combat operations. Our lethal targeting cell was huge. By the end, we had reduced the lethal targeting cell to only a few. In addition, the non-lethal analysis cell had grown exponentially.

2

1

We kept about 90% of the people, but people changed functions. For example, we had a medical service officer who doesn't normally take lead on anything in the normal organizational structure. But this person was extremely smart in economics and marketing, and so he took the lead on several operations we were planning and provided oversight when people were executing those operations.

Our field artillery officers were well-trained in targeting. We took half the cell to stay as lethal targeting, and had the other half look at non-lethal

targets. We tried to leverage the skills they had and show them how they could apply them differently. The same process of thinking that we applied to lethal targeting, we started applying to non-lethal targeting.

We had to have our intel officers stop looking at: Where are the terrorists? Instead, they started looking at: Who are the people who have leverage in society? Instead of looking for targets to attack or capture, we were looking at targets to support, reinforce, sustain, and connect with other aspects of society so they could build that network. I took expertise that is trained on the targeting function and had them change their focus. That is where we started getting payback on our investment.

Seeking Multiple Perspectives

We also brought outsiders into our planning meetings. We used the embedded Provincial Reconstruction Team. We had a great State Department person who taught city management. He would coach the city councils. We would sustain that, support that, and get him connected to the right people.

Also, we used the Department of Agricultural representative to help us look at canal systems because there was a huge water issue. We were next to a river. But people were starving for water, and we didn't know why. The agricultural representative came in and helped us understand the canal systems, how it should work, how a canal undulates, and so forth. We started realizing things that helped us understand the water problems such as: 'this particular farmer blocked it off, either intentionally or unintentionally.'

Outcome

Originally, we were paying the most attention to kinetic activities. At the end, it was the non-kinetic things that were getting us traction. We had to change our rhythm—like how often we met for normal targeting meetings—and how much time we devoted to other issues. But, soon these other issues became the crux of the mission. The result was a reduction in violence and the return of displaced people. In our area, we had thousands of people coming back and settling. There were many things that showed progress and indicated that what we were doing was making a difference (like a wedding dress store opening, which was a joint business between Sunnis and Shi'ites). It showed some progress that these other activities were helping. Allowing structures of society to come back was alleviating the conflict.

2 Example:

"Design over Dinner"

(CJ5 Strategic Planner perspective)

The Context

The first Design effort in Afghanistan went for the whole year. We met two times a week. It was more of an informal Design effort that got punctuated every now and then with a task.

The Team and the Process

After the ops order was written, I picked several people from the different sections of the Command and asked them to be part of a dinner group. We would discuss issues about Afghanistan. We made ourselves known to the command. We had NATO officers in that group, and other planners that weren't SAMS-educated.

The Command group had handed us a piece of information about the paramilitary police. They asked us to study the Afghan National police and how to make them better. That is the way we operated. We would take on a topic from the Commanding General, switch gears to that topic, and go back to the Commanding General with results and conclusions. Then we would move on to another topic.

Communicating the Ideas

Because we were not all planners, the ideas we came up with would bubble up in other shops in the Command. For example, the J3 used some of our ideas in his shop. He would take it back and influence things they came up with. So ideas got used that way. We were able to influence the Commander by having more than just planners involved. People from other shops would bring ideas from their shops with them into the group too. We would share ideas with them, and they would share with us. We would seed ideas within the Command that way.

Challenges

Getting other people into our group was tremendously frustrating. We were unable to get an Afghan to our meetings twice a week. We did get an Afghan police officer into our group a few times, but not permanently. Our command was a NATO command and it was hard to get people from other commands into the group because of the obsession with security. So getting different perspectives in the group was a massive challenge.

3 Example:

"Mapping out the Mess"

(J5 Strategic Planner perspective)

The Context

I deal with the transition in Iraq from a military-led mission to a civilian-led one, as the US Forces drawdown by 31 Dec 2011. I truly deal with wicked problems. It involves working with interagency and understanding Iraq's political, economic, and security environment. So many things influence what direction you take for engagement and development in Iraq, and things change very fast due to the dynamics of our on-going relationship.

2 We used Design thinking fairly recently. There were issues we were facing about how to transition from a military-led to a civilian-led mission in Iraq. All the things the military was doing up until now—
3 providing medical support, providing mail service, delivering food and fuel—we were asking the State Department to take over these essential activities. State has relied on DOD support for so long. You start pulling these things out of the mix and begin realizing, 'how are we really going to do this? Who will run the hospital in Iraq when the military is not there? What can we do? And what are the problems we need to focus on, given the current constraints and within the fiscal environment?'

Recognizing the Need for Problem Framing

It's very easy to get locked into trying to fix one problem at a time or the one that is first in your inbox. You may not realize that it is actually not the main problem to fix right now. Our boss brought us into his office and said, 'we're losing touch here… We can't get our arms around what the important issues are that we need to work right now.' And I said, 'Sir, I think you should let us Action Officers go down to a room for a half day and reframe the problem. We need to map out the mess.' We needed to remove ourselves from our Joint Staff cube farm, get away from phone calls and email, and pack ourselves in a room for a couple of hours and really think through the issues.

Understanding the Problem

We looked at several different issues—everything from funding authorities, to privileges and immunities that the U.S. mission personnel must have in Iraq post-2011. We tried to reframe some of the problems that we were facing.

We were given four hours to do this. We could have used more time to clearly articulate it and come up with an approach. But there were time constraints. As we mapped out the mess, we discussed different issues and then focused on their interdependencies. We discussed everything from the funding appropriation language, to budget cycles, to potential agreements necessary to achieve the end state we defined from the beginning. We soon realized that we were actually not doing too badly, despite our initial assessment. We just needed to re-frame our problem in a way that was understandable and could be acted upon.

The Process

2

I wanted to make sure that it wasn't too academic. I initially called it "Reframing Iraq." I put together about 10 slides in terms that the 4 of us would understand, without having to teach Design to somebody. I went through the SAMS Design student text to see if there was something that sparked my interest. I had some things in mind such as: we need to map out the various issues and how they relate to each other; what are the tensions between these relationships? In which ones could we effect change? And which ones, if left alone, will just go their own course? We needed to describe what our current environment was, and what we desired as our end state for transition in Iraq, based on national objectives.

3

I built the slide set based on the different frames of an approach to design thinking: an environmental frame, a problem frame, and developing an operational approach. Within each of those frames,

we started looking at factors and their relationship to one another. In between each page in the slide deck, I had a blank page. It was a note page, because I really wanted them to doodle and be creative. I gave them those slides about a half day ahead of time.

I included a slide called "boundaries," which included a couple assumptions. I did this intentionally because we could continually 'what-if' a situation to death and that could unhinge our ability to move forward. We had to assume certain things.

By putting things on a whiteboard, it was easier to work through some of these relationships and issues. I acted as a recorder and drew all over the board. As we shuffled through different issues, we would erase, record, or re-diagram, and then we'd go from there. It just flowed. All thoughts were welcome.

Space and Materials

We wanted a room that had a lot of whiteboards, where we could walk around if we wanted to. The night before I packed a bag at work of markers, notepads, pencils, and folders, because you just don't know how it is going to take shape once you get there. I didn't want us wasting time looking for simple supplies.

Commander Guidance

We had our boss come down at the beginning. He told us one more time what he was looking for so we all clearly understood. His intent was very clear about making sense of the mess and defining the critical path. Then he wanted a narrative or framework for a paper that defined the critical path we needed to focus on for the next several months. He told us, 'if you reach a point where you hit a wall and need me to come down, I'll do that.' And we did. We reached a point where we wanted to bounce some ideas off of him and see what his thoughts were. So we brought him back down, identified the issue, and then moved forward.

2

Seeking Multiple Perspectives

There were only four of us. We thought about who else we needed to bring in. We brought in subject-matter experts and people from various Directorates on the Joint Staff. We brought them in one at a time. If there was a funding problem, we had our money folks in there. If it was a discussion on authorities, protections or immunities, we had lawyers in there to make sure what we were saying was accurate and within the legal constraints. They came in for 15-20 minutes to look at how we were describing things, and they provided a sanity check.

3

The Product

At the end, we began outlining a paper describing the overarching issue and course of action. Then we each took a stab at various aspects of the outline. It became a living document. We also came up with a graphic to describe what we were trying to achieve.

Outcome

The Design process reaffirmed that we were actually heading in the right direction. It refocused everybody. It helped us better define the critical path that we needed to go down over the next several months in order to keep us moving towards transition. One of the biggest measures of our effectiveness was that we didn't have to dedicate so much time working on a solution to something that we determined wasn't critical at that time. On the Joint Staff, time is extremely valuable; we cannot afford inefficiency in our daily work as it leads to further inefficiencies and inaction to our warriors.

4 Example:

"Illumination in Vietnam"

(Commander perspective)

The Context

This is a retrospective view of what I think was Design. As a young company commander, I was leading a company of about 200 Marines in Vietnam. We had been sent into an area where the Viet Cong were firing rockets into an airbase. No unit had been able to stop them. There was nothing in my formal instruction about how to stop rockets being fired out of primitive areas into an airbase.

Organizing the Staff

2

I assembled my four platoon commanders. I had the intelligence officer come from the battalion. We brought in the forward air controller, the liaison officer from artillery support, and a couple other key people. And we just started talking about it.

4

Understanding the Problem

One of the things we learned was that Viet Cong didn't fire rockets whenever there was illumination. So if you had a full moon, they never fired. They never fired during daytime. The artillery liaison officer said—'sir, if we had 24 hours of daylight we wouldn't have this problem.' Later he asked if he could leave to get some material. When he came back he had a piece of cardboard on which he had laid out astronomical data for the next month—beginning with morning nautical twilight, sunrise, evening nautical twilight, sunset, and moon phases. Against that, he had plotted all the resources we had to put up illumination. He laid out a plan for

where it would never be dark for more than 10 minutes in our area of operation.

Another thing we learned was that it took a flat piece of ground (about 20 x 20 ft) to fire these rockets. They could not fire them out of rice paddies, or any place where there was a lot of brush or trees. When he heard this, a lieutenant slipped off and came back with a map where he had highlighted every place in our AO that fit that description.

We did not compare options. We simply began talking about it. We started understanding what the logic of this problem was, and we developed a counter logic. The logic was they need darkness and a flat piece of ground, so let's get rid of the darkness. It came together into a coherent Design and plan. I think it's a question of: what sort of problem are you faced with? Does it lend itself to analysis? Is it so obvious that you understand what you need to do intuitively? Or is it one of these things that's a mess, and the only way you can approach it is sit down and talk to people who have the potential to have some insight into it?

Outcome

What eventually came together was: every area where they could fire from, we would either have one our patrols on it, or we would fire a mortar or artillery on it every 15-20 minutes so nobody would have the opportunity to set up the rockets. We went more than 3 months without a single rocket coming out of the area. The enemy had previously fired rockets every few days.

5 Example:

"Ongoing Design"

(Strategic Planner perspective)

Context

I worked in a future plans shop led by a Ph.D. who loved to get people around a table and explore problems by discussing them, which is a very large part of Design. It was continual learning through discourse. One of the problems we studied had to do with where troops would be staged. There were some original beliefs that the bad guys operated in a certain way.

Process

2 It was a constant discussion. It wasn't: 'let's rally around the table and have a Design team meeting.' It was a discussion that went on for weeks and months and happened at the dining facility, happened in front of the Commanding General, and happened at every level in between.

5 We had very open-floor discussions. We spent a lot of time arguing about whether something was a problem, what the environmental conditions were telling us, and what the underlying problems were that we were missing.

We would hammer through hard problems often over a meal, and then we would put together products and go to the Commanding General, present to him what we thought the problems were, and get his input. It was a continuous cycle of organizational learning.

We were deeply immersed in it. We would spend 18-20 hours a day with the exact same people. Tomorrow's conversation would pick up where last night's left off. We would work together to develop understanding.

Organizing the Staff
There was a core group of planners, which included the G5, two maneuver planners and a logistic planner. Those four guys were probably involved in every conversation. From there, we would add more depending on the problem we were addressing at the time.

At one point we did a project called 'safe neighborhoods,' where we started putting up concrete around the city and walling off the neighborhoods to reduce sectarian violence. As a strategic planner, I didn't need to be part of that conversation. For that, we brought an engineer to the table.

Investigating & Seeking Multiple Perspectives
The Commanding General was immersed in the same information that we were, so we didn't have to write deep information papers. It was a very organic conversation. We were all building the knowledge together. When we had real insights and epiphanies, the G5 would sit down with the Deputy Commander and talk through it and clarify the idea. Then the Deputy Commander would socialize the ideas with the General. So when we briefed him, the conversation had arrived before the briefing had. The ideas had already been aired.

Capturing & Communicating Ideas

We were shameless researchers. We contacted everybody. We had contacts with think-tanks. We went to different Intel agencies. We read books. We called friends that worked in units that were walking the streets. There was a person who was writing several articles on what was happening on the streets. We would call and talk to the battalions in those neighborhoods and would say: 'here's what this person is saying about what's happening on the street; what's your read on it?' We were going anywhere it made sense to get better information. We never knew exactly the right person to call. We would start with the people we knew; we would pick up the phone and go from there. It was the same thing as doing any other type of research. You go into the library, read a book, and find a footnote that takes you somewhere. And then that takes you somewhere else. You follow it.

2

5

Outcome

The problem we studied had a lot to do with where the troops ended up being staged. There were some original beliefs that the bad guys operated in a certain way. But through our continuing research—going back to the library, looking at the Intel, talking to the experts—we recognized that where we originally thought we would put extra troops would not have solved any problems. We would have just had more guys on the street. It was discovering the enemy patterns of movement and the opportunity that presented. That led to where we put large formations on the ground.

Additional Resources

This section provides guidance for additional material you may consider to augment the topics covered in this resource. It is organized around topic areas, and provides references that are oriented toward practitioners.

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APPENDIX

Organizational Barriers to Implementing ADM

In a recent effort sponsored by the Army Research Institute for Behavioral and Social Sciences, research was conducted to understand the issues associated with introducing Design into Army doctrine and education. In many organizations, change efforts are met with resistance. Introducing new practices into an organization can present a host of challenges that are often unrelated to the technical merits of new ideas, but nonetheless undermine successful implementation. The source of these barriers can be at the individual, team, and organizational levels.

The focus of the research project was to identify and document significant barriers likely to impede adoption of Design as the Army begins to incorporate it into operational use. The table on the following page provides a high-level summary of the barriers to integrating Design into Army operations. [9]

[9] For more detail around the barriers, please see the following Research Report: Grome, A., Crandall, B., Rasmussen, L., & Wolters, H. (2012). *Incorporating Design into Army operations: barriers and recommendations for facilitating integration.* Final Research Report under Contract No. W5J9CQ-11-C-0022.

Barriers to Integrating Design into Army Operations	
Terminology and Language Barriers	• Perception that Design lexicon is over-complicated, dense, and elitist • Lack of consistent terminology; the lexicon continues to evolve • Language has fostered a sense of divisiveness and an 'us vs. them' mentality
Conceptual Barriers	• Inconsistent definition and description of Design • Lack of agreement as to whether Design is new vs. mission analysis by a new name • Insufficient description of the gap Design is intended to fill • Inconsistent views on the operational level at which Design is appropriate • Lack of clarity on how Design connects to other planning activities, specifically to the Military Decision Making Process (MDMP)
Organizational Culture Barriers	• Strong cultural tradition of reductionist-analytic thinking • Culture of deference and obedience to authority • Incentive systems that do not encourage thought processes that are characteristic of Design
Command-level Barriers	• Insufficient Commander involvement in Design • Competing demands for Commanders' time and attention • Limited understanding of when to use Design and the benefits it offers • Mismatch between personality/leadership styles of typical commanders and those needed for Design
Application Barriers	• Disagreement over whether (and to what extent) Design should be proceduralized vs. remain more conceptual in nature • Lack of examples and evidence of utility • Practical challenges of applying Design in the real world, such as recognizing situations for which it is appropriate, building the Design team, and facilitating discourse

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The Commander's Resource for ADM was based on research conducted by the U.S. Army Research Institute for Behavioral and Social Sciences under contract number W5J9CQ11-C-0022 by Cognitive Solutions Division of Applied Research Associates, Inc.