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Embracing Complexity:
Adjusting Processes to Meet the Challenges of the Contemporary Operating Environment

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The modern United States' way of war is overly focused on detailed planning processes, setting conditions, and integrating enablers. On the one hand, this shows the understanding that the military alone cannot solve problems. However, military theorist and retired Army officer, Douglas MacGregor suggests,

> [t]he contemporary Army still treats warfare as an activity that can be carefully orchestrated. As a result, simulated combat at the training centers still accustoms too many leaders to look at war more in terms of the plans and preparations to fight than of the results that be achieved by action.[1]

Furthermore, MacGregor postulates that defeat in battle is not the result of a failure to plan for every possible contingency, but rather, from an organization's ability to understand changing battlefield conditions and quickly evolve to face those challenges successfully.[2]

With that in mind, U.S. Army doctrine should evolve and adopt approaches that are inclusive, collaborative and focused on identifying types and interdependencies of problems, not just 'right' problems.[3] Current operations doctrine negates identifying types of problems, but instead looks to not solely focus on the symptoms of the problem.[4] This approach, while a step in the right direction, overlooks the vital nature that identifying the types of problems plays, in addition to identifying the right problem.

In this essay we advocate for adjustments to the U.S. Army's operations process. It has to be as agile and flexible as the *Human Dimension Strategy 2015* demands of future military leaders. Adjustments should be made to the commander's visualization process that will facilitate better organizational understanding in regard to the problem types and interdependencies of problems they are confronting. The operations process should incorporate the Cynefin framework as a tool to assist commanders and staffs in developing appropriate strategies to problems at hand.[5]

Understanding Problems

Much has been written the past several years regarding the US Army's ability to effectively operate in relation to ill-structured problems. However, few writers nor Army doctrine have effectively articulated how to merge the identification of types of problems (i.e. ill-structured, medium structured, well-structured) with the Army's operations process (For continuity of thought, the terms ill-structured, medium structured, and well-structured problem will be substituted with simple, complicated, complex, and chaotic problem). Army Design Methodology (ADM) and Military Decision Making Process (MDMP) emphasize the importance of defining problems, but the contemporary operational environment necessitates the understanding of their type and dependency. In understanding problem type and their linkages, planners and staffs can craft better operational and tactical solutions.

Much like framing the wrong problem can handicap developing an effective operational approach, so too can misidentifying the type of problem at hand (i.e. mislabeling a complex problem as a simple problem. There are several tools available to assist in sense-making in relation to the types of problems, but David Snowden's Cynefin framework is one that has proven quite effective in professional fields.[6] The Army does not possess official information regarding the framework's efficacy in relation to the operations process; however, anecdotal evidence regard-

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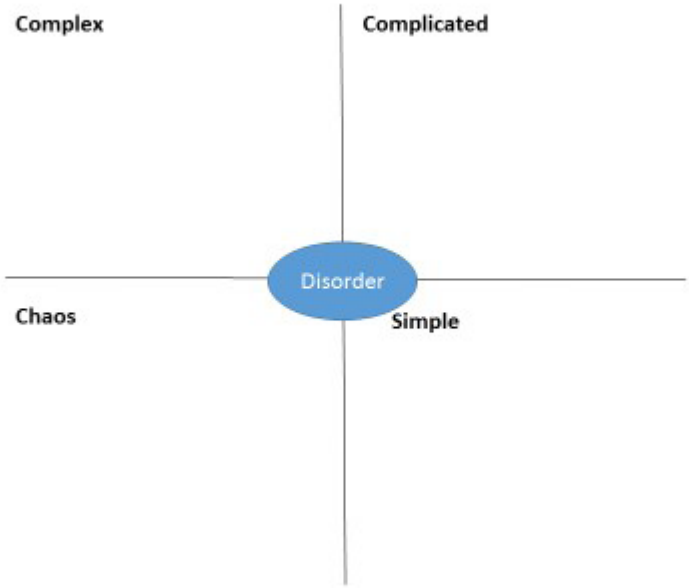
ing the Cynefin framework's utility exists in the form of student feedback from those having experimented with the framework during the 2016 Army Command and General Staff College school year. Multiple staff groups employed the Cynefin framework in the manner outlined in this essay in division and corps-level planning exercises. In each case the students found that the framework facilitated more complex understanding of the problems at hand, allowing them to develop more thoughtful solutions.[7]

Figure 1: Cynefin Framework



Snowden's Cynefin framework sorts the challenges or tasks facing an organization into five domains based upon their relationship between cause and effect – these are: simple, complicated, complex, chaos, and disorder.7 According to Snowden, the Cynefin framework allows leaders to "[s]ense which context they are in so that they can not only make better decisions but also avoid the problems that arise when their preferred management style causes them to make mistakes."[8] In many case, "preferred management style" equates to commander-centric, "expert"-oriented methods. As the Cynefin Framework shows, the expert-oriented approach is only applicable in certain domains.

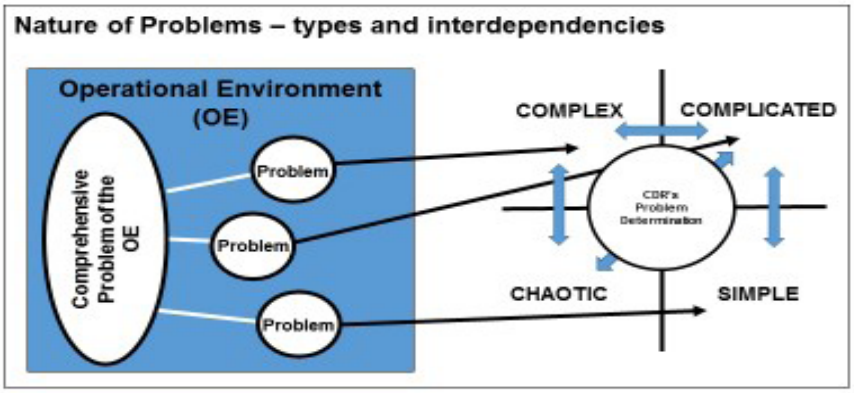
Furthermore, author Nassim Taleb states predictive systems cause brittleness in organizations.[9] As such, the ADM and MDMP, being predictive systems used for military planning, inherently inject fragility into Army operations. ADM and MDMP do so by focusing on identifying correct problems, and not necessarily in identifying the type of problems or their linkages throughout the larger operation. In light of ADM and MDMP's shortcomings, Army leaders incorrectly apply solutions to problems by not understanding the nature of the (comprehensive) problem in which they are engaged. Likewise, the MDMP is excellent for generating data, but Taleb warns against ubiquitous data because it is often white noise, toxic, and generates over-reactions.[10] This 'white noise,' or excessive information, can mislead or confuse Army leaders, causing them to either waste time sifting through mountains of data to make sense of the information, or if misinterpreted, can cause them to develop courses of action against incorrectly framed problems.[11]

What is more, problem solving should be focused on closing knowledge gaps. To do so, organizations must first open knowledge gaps through the exploration of problems prior to developing solutions to close those gaps. Similarly, opening gaps benefits from sequencing information, which allows knowledge gaps to be thoroughly examined before devising solutions to close the knowledge gaps.[12] Therefore, innovative change is required to

improve the Army's planning process.

The first step of innovation lies in the U.S. Army adjusting how it defines problems. The current models of ADM and MDMP coach the practitioner to find the correct problems. However, as Snowden and Taleb discuss, generating data and identifying the correct problem is only part of success. To plan in the appropriate direction, commanders and staffs should also identify the problem type and link they are addressing; only then will operations be harmoniously synchronized (see Figure 2).

Figure 2



Causality – the Essence of Identifying the Nature of a Problem

In *A Leader's Framework for Decision Making*, David Snowden and Mary Boone introduce the Cynefin framework, a sense-making model for understanding complexity and the nature of identifying problems. The Cynefin framework is built upon the theory that cause-effect relationships determine the nature of a problem. Snowden and Boone define simple problems as those in which a clear cause-effect relationship exists. Simple problems are handled through the use of standard operating procedures (SOPs), best practices, and one or a few good solutions. Complicated problems are those in which cause-effect relationships are perceptible and are the realm of experts. Complex and chaotic problems are those in which there is no clear relationship between cause and effect. Additionally, the use of experts is anathema to complexity and chaos as it can often exacerbate the situation. In discussing the use of experts in relations to complex problems, Snowden and Boone state, "Leaders who try to impose order in a complex context will fail, but those who set the stage, step back a bit, allow patterns to emerge, and determine which ones are desirable will succeed."[13] Emergent practices and a probe-sense-respond approach are the preferred method in which to address complex environments.[14] Taleb echoes this position, theorizing that in complex systems causality is suspect and nearly impossible to identify or define.[15]

The Army Design Methodology, which focuses on identifying the right problem, based upon understanding and isolating the root cause of the problem already provides the doctrinal framework in which these ideas can be incorporated.[16] ADM's sub-section in chapter two on problem framing should be expanded to evaluate and frame problems. Furthermore, the results of the assessment should be applied in Frame Three of design to assist in developing suitable courses of action, oriented on the right problem, and the right approach for a given type of problem. Moreover, this can be built into the MDMP's mission analysis and course of action development, just as it is with design's Frame Two and Frame Three.

The Cynefin framework, with its authoritative method for determining complexity, is well suited to complement the U.S. Army's Operating Concept. The Cynefin framework is an excellent tool for commanders to guide the operations process and supervise in their visualization. The integration of the Cynefin framework enables commanders to effectively communicate the nature (i.e. type) of the problem(s) to staff and subordinate leaders; in doing so, the staff will be able to integrate agility and flexibility in the course of action development.

Recommendations

To achieve this, it should be examined whether the following adjustments could increase the agility of the operations process. First, the operations process, specifically the problem determination, should be commanders driven, but not commander-centric. It should be collaborative in nature. The commander, still the center of gravity of the operations process, should not be the doer of the process. The role of the commander should be adjusted from the "expert" who applies tried and true solutions to that of facilitator, who directs the staff by effectively articulating their visualization and by leading the operations process through well-developed questions based upon their understanding of the problems and types of problems facing the organization. The commander's visualization must frame the MDMP.

There are several benefits to this approach. At the most fundamental level, this approach will develop quality understanding within the headquarters. Quality understanding will enable the headquarters to devise and operationalize courses of action that create the correct conditions for effective unit employment, allowing units to achieve the commander's end state.[17]

Additionally, historian Macgregor Knox suggests that integrated staff processes allow staff officers to not merely work as assistants to the commander, but to function as a sort of 'central nervous system' for the planning process, harnessing the collective wisdom of the staff.[18] The byproduct being a more thoughtful, well-developed plan than you might otherwise get with a less integrated planning process. The following paragraph provides one technique to address this situation.

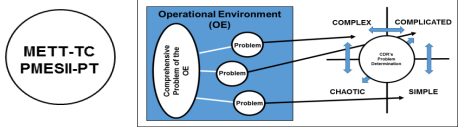
The headquarters should align into two groups – the first being centered on the commander and used to develop the visualization; the other group, the remainder of the staff, led by the chief of staff, and should be focused on generating running estimates. Dividing into visualization and estimation groups will bring teams from 'assistants' to acting more as central nervous systems.

The visualization group is to be determined at the commander's discretion, but this group should consist of the commander, the operations officer, and the intelligence officer. The visualization group executes a visualization process that consists four steps – 1) identifying the problem and types of problem, 2) defining the end state, 3) identifying core competencies, and 4) identifying the manner in which the warfighting functions will be integrated (see Figure 3).

Figure 3

Commander's Operational Visualization

Step 1: Identify The Problem



Problem Statement

Step 2: Define The End State

Friendly:

Enemy:

Terrain:

Civil:

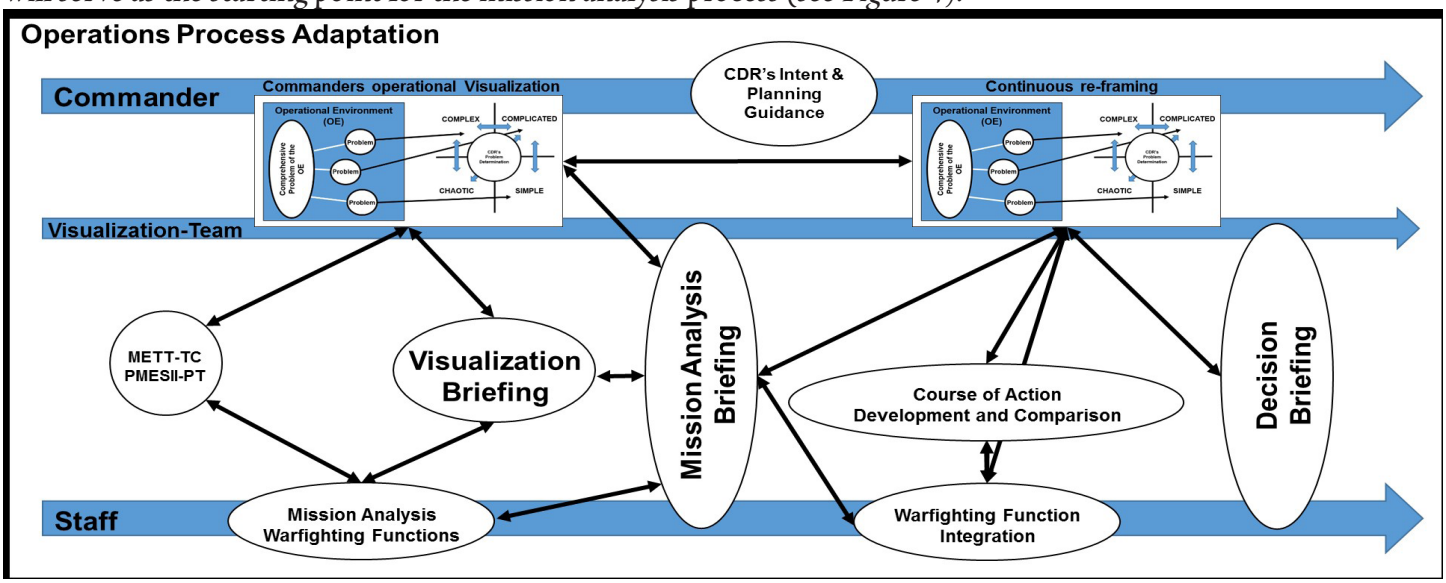
Step 3: Core Competencies

	CAM	WAS
Mechanism		
Decisive Pt.		
Decisive Op.		

Step 4: WfF Integration

Intelligence:
Fires:
M&M:
Protection:
Sustainment:
MC:

Concurrently, the staff, under the direction of the Chief of Staff, will update their respective running estimates. Upon completion of the visualization, and prior to beginning mission analysis, the visualization group will brief the remainder of the staff on their visualization. They will articulate the problem state, the proposed end state, how the organization will address the problem, and how to integrate the warfighting functions. The visualization brief will serve as the starting point for the mission analysis process (see Figure 4).



The outputs of the visualization are not concrete solutions, but recommendations based upon initial analysis. The commander and staff will adjust the visualization outputs during the MDMP, as warranted.

The Army should clearly define what elements constitute the problem statement. If written with enough granularity, an effective problem statement will allow commanders and staffs to pull those problems, based upon their cause-effect relationship, to their corresponding domains on the Cynefin framework. This will then enable the commander and staff to develop effective plans by aligning problems to solutions based upon the relationship between cause and effect.

Conclusion

The contemporary operational environment dictates military leaders and their problem-solving processes to possess high degrees of agility. Agility requires a willingness to adjust to the environment when accepted practices no longer sufficiently account for coeval conditions. The unique nature of complex operating environments warrant adjustments to the commander's visualization and operations process. Incorporating the Cynefin framework could be critical to increasing the effectiveness of each of these components of U.S. Army doctrine. Furthermore, adopting these approaches will likely increase the efficacy of Army planning.

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NOTES:

1. Douglas A. MacGregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century* (Westport, CT: Praeger Publishers, 1997), 160.

2. Ibid., 162

3. Army Doctrinal Reference Publication (ADRP) 5-0, *The Operations Process* (Washington DC: Government Printing Office, 2012), 2-9.

4. Ibid.

5. David J. Snowden and Mary E. Boone, *A Leader's Framework for Decision Making* (Harvard, MA: Harvard Business School Publishing Corporation, 2007).

6. Joseph Pelrine, "On Understanding Software Agility: A Social Complexity Point of View," *E:CO*, Volume 13, no. 1-2. (2011): 36.

7. Observations and informal information collection by the authors. Feedback regarding improvements to the planning process was provided by CGSC instructors and students involved in the planning process. The authors also participated in these planning exercise.

8. Snowden and Boone, *A Leader's Framework for Decision Making*, 2.

9. Nassim Nicholas Taleb, *Antifragile: Things That Gain from Disorder* (New York: Random House Publishing, 2012), 71.

10. Ibid., 131.

11. Ibid., 150.

12. Chip Heath and Dan Heath, *Made to Stick: Why Some Ideas Survive and Others Die* (New York, NY: Random House Publishing, 2007), 85-93.

13. Snowden and Boone, *A Leader's Framework for Decision Making*, 5.

14. Ibid.

15. Taleb, *Antifragile: Things That Gain from Disorder*, 71.

16. ADRP 5-0, 2-9.

17. Macgregor Knox, "The French Revolution and After," in *The Dynamics of Military Revolution, 1300-2050*, ed. Macgregor Knox and Williamson Murry (Cambridge, NY: Cambridge University Press, 2001), 72.

18. Clifford J. Rogers, "As If a New Sun Had Risen: England's Fourteenth-Century RMA," in *The Dynamics of Military Revolution, 1300-2050*, ed. Macgregor Knox and Williamson Murry (Cambridge, NY: Cambridge University Press, 2001), 34.