Maj. Kenneth J. Ferguson, the operations officer for the 2d Combat Aviation Brigade, discusses his course of action 7 August 2015 at the brigade headquarters on Camp Humphreys in the Republic of Korea. A course of action is one part of the military decision making process. (Photo by Sgt. Jesse Smith, U.S. Army)

Leadership in a Starfish-Spider-Continuum

Implications of an Increasing Complexity to Commanders and Organizational Leaders

Lt. Col. Thomas Kopsch, German Army

Why does the military need people with strong and appropriate leadership skills? What does it mean when the Army describes leadership as "the process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization?"[1] Military leadership bridges the traditional soldiering skill set with the requirements of present and future challenges. The special relationship between commander and soldier, the responsibility for subordinates, the soldier's duties, and the protection of the country are unique symbols of Western military tradition. The philosophy of mission command guides military leaders as they build teams, create shared understanding, provide intent, enable initiative, use mission orders, and accept risk.[2] The application and adaptation of this philosophy, which evolves through trust among leaders and soldiers, is essential to keep up with today's challenges.

Within the last decade, the security situation has changed significantly. Today, Western nations are facing conventional challenges that threaten national sovereignty while, simultaneously, they are confronting opposing ideologies, fundamentalism, and terrorism from entities that apply unconventional warfare. The concerted application of conventional and unconventional means and methods—known as hybrid warfare—has expanded the scope of warfare within diplomatic, information, military, and economic domains in order to achieve political ends. The fluidity beyond the military domain, variation in the type of warfare, and applying an approach to inflict the population creates multiple actors, relationships, and interdependencies—ill-structured, complex problems.[3]

In a complex environment, a traditional approach to organization, involving staff as the central body revolving around a commander, who is deeply procedurally involved and trying to control all processes concurrently, could be a disadvantage in terms of adaptability, learning, and agility. These discrepancies reach their maximum extend when compared or confronted with an adversary that utilizes networks consistent of independent cells, united through a common ideology or fundamentalist belief, without a central head. For the sake of brevity and in constancy with the main source, this predicament is dubbed the "spider-starfish-continuum."

Which leads to our main question: What kind of leaders and processes does the Army need in order to cope with the challenges this problem implicates?

Geoffrey Parker describes the success of the "Western way of war" as being due to its aggressive military tradition, the discipline of the forces, superior technology, the ability to adapt and respond to new challenges, and the will to sufficiently resource the military.[4] In combination with a globally spreading Western economy, these principles have ensured the advantage of Western forces against adversary military spider organizations. This depends heavily on strong Western industry and the industrial-military complex that enables the development of advanced technology, a rapid response to new challenges, and, if necessary, an overwhelming funding of military campaigns and operations.[5]

Another characterization of Western forces is its focus on seizing the initiative.[6] This means that a military force should be able to impose its will upon the enemy in order to achieve and maintain the advantage.[7] Consequently, if a military force is able to keep and dictate the initiative, it will attack and dominate the enemy's center of gravity over time. This leads to victory and the surrender of the adversary.[8] Therefore, initiative and momentum have been the cornerstones of Western military tradition. To enable initiative and momentum, disciplined forces are a precondition. Doctrine, training, and an appropriate leadership philosophy, like mission command, are the pillars of conducting disciplined action.

Operation Desert Storm in 1991 revealed the strength and quality of U.S. forces. Advanced technology like night vision and precision-guided munitions, a multiagency approach to support operations with the right capability at the right place and right time, and the philosophy of mission command that enables initiative at all command

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levels formed the recipe for success.[9] U.S. forces were always able to dominate the Iraqi Armed Forces in order to achieve and maintain the advantage. This led to the defeat of the less effective spider-organized Iraqi military within one hundred hours.[10]

The example of Desert Storm shows the superiority of the principles of the Western way of war, specifically against conventional, spider-organized, adversarial forces. However, a negative side effect of Desert Storm was the *display* of these capabilities and principles of warfighting.

U.S. military and technological superiority showed that the U.S. would not be defeated in a regular, conventional fight or operation. According to Mao Tse-tung's principles of revolutionary war, the development of other procedures and tactics against this overwhelming U.S. superiority were necessary. Against the technological and resource-based superiority of centralized Western forces, a decentralized network structure seemed to be appropriate.[11] It became understood that new measures were necessary to undermine the Western will to fight: a nonexistential threat, continuous decades-long campaigns abroad, and payment of a huge check in terms of injured and killed Western soldiers. Therefore, hit-and-run tactics; avoiding a direct, conventional, decisive confrontation; and attacking only the weak spots of Western forces were determined to be the means to degrade the patience and will of Western populations.[12]

To combat these threats, Western forces employed an approach centered on counterinsurgency (COIN) and the rebuilding of democratic institutions. COIN tried also to neutralize the different leadership levels of terrorist networks.[13] However, these networks worked through independent cells that are comparable with a starfish.[14] A starfish consists of different cells working together through coordination. The different legs of a starfish are not dependent on each other, and they do not have a central body that commands these legs.[15] This means that if a starfish loses one leg, both starfish and the leg will survive. They are not dependent on a central command like a spider.[16] Consequently, the starfish is able to survive through decentralization because of its unifying ideology and purpose, whereas a spider can only survive through strength, coordination, and operational tempo.

Western forces have faced such decentralized, "starfish" opponents during stability operations in Iraq and Afghanistan. These networks consist of independent cells, united through a common ideology or fundamentalist belief, tactically not dependent on a central head.[17] Neutralizing mid- and high-level leadership led only for a short time to a vacuum that other cells could fill almost instantaneously. Fighting these decentralized networks with the centralized designed Western forces was like fighting windmills.

Additionally, recent history shows a growing tendency of other nations to mix conventional and unconventional means within a conflict. The mixture of regular and irregular warfare, with a shaping multidomain approach, combines centralized with decentralized procedures and tactics.[18] This mixture—a hybrid operation—also increases the complexity of military challenges within operational environments.[19] Consequently, a military organization cannot answer this spectrum with only centralized means. It also has to understand the processes of decentralization–the starfish. The commander and the staff must be capable of understanding problems and applying solutions within a starfish-spider continuum.

Understanding Complexity

The starfish-spider continuum refuses a clear distinction between major combat operations and stability operations. Specifically, hybrid warfare will always use elements of both. This means we will face an environment that cannot be clearly distinguished in scenarios of fighting a purely centralized, regular adversary, or a more decentralized, irregular threat. There could be tendencies of either, but the boundaries between major combat operations and stability operations continue to blur.

Due to these challenges, the U.S. Army developed *The Army Human Dimension Strategy 2015* that describes a clear picture of the future operational environment (OE) and the requirements of the future military leader. The Army lists the requirements of agility, creativity, learning, and the ability to thrive in uncertainty for commanders and staff officers.[20] With the preconditions of cohesive teams, trust between levels of leadership, shared understanding, clear intent, and disciplined initiative, as well as acceptable risk, mission command will remain the cornerstone of the Army's leadership philosophy. However, major questions remain. Besides the description of present and the anticipation of future challenges within the operational environment, the assessment and evaluation of an army's organizational and procedural structure in relation to future adversaries is paramount.

What is the most dangerous kind of adversarial, organizational structure facing the United States, and is the current organizational design of its military sufficient to deal and to adapt to these future networks? And, is the military's current organizational and procedural model sufficient to enable agile leadership in a continuum of centralization and decentralization?

several major players.[21] The most important aspect is the distinction between cause-effect relationships and cause-effect correlations.[22] According to the number of interdependent and independent parameters, definite forecast of actionable consequences is impossible.[23] If this assumption is right, there will be always unknowns within an OE. Consequently,

Soldiers assigned to the 35th Combat Aviation Brigade, Missouri National Guard, conduct a combined arms rehearsal in preparation for a combined arms exercise 14 June 2016 as part of annual training at Camp Clark in Nevada, Missouri. The brigade conducted the combined arms exercise in preparation for an upcoming Warfighter exercise and deployment. (Photo by Spc. Samantha J. Whitehead, U.S. Army)

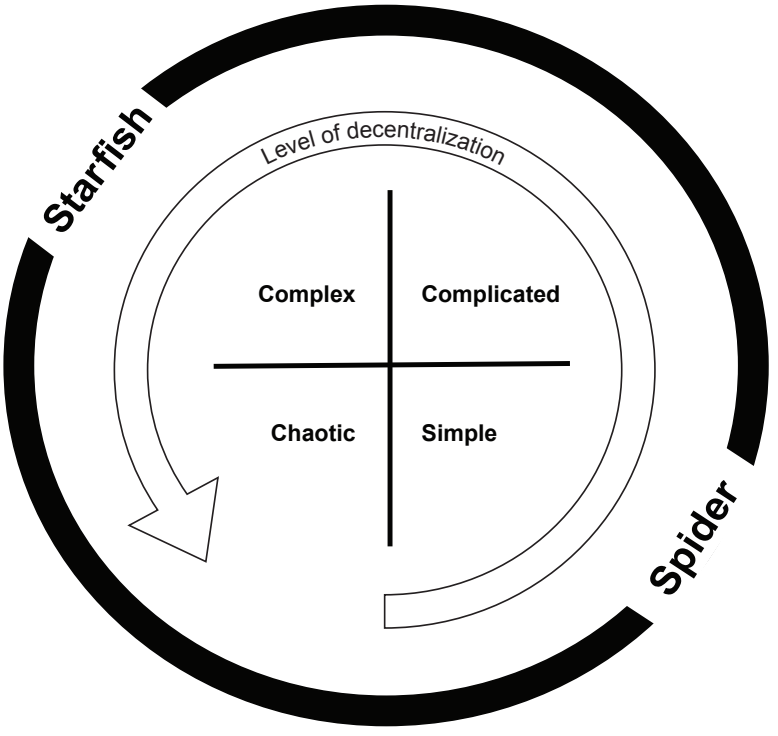
The human dimension strategy's discussion about the future OE, its implications, and additional organizational considerations contribute to an understanding of the term complexity. In this regard, complexity is not the coincidence of several actions in time and space, like in an ambush. Although an ambush could be seen as complex from the perspective of a platoon leader, units are able to train for such situations. It is possible to familiarize a soldier with ambushes and foster countermeasures through military drill.

David Snowden and Mary Boone define complexity as nonlinear interactions in a dynamic system of

problems in current and future OEs will never accept simple answers.

The Cynefin model uses cause-effect relationships and cause-effect correlations to differentiate between simple, complicated, complex, and chaotic contexts.[24] These four contexts sort elements of an OE into categories dependent on the level of relations between cause and effect. Further, the model provides methods and procedures for how an organization can achieve a better understanding of its environment and how correlations could be turned into relations that are the preconditions that determine subsequent actions.[25]

Given the starfish-spider continuum of military organizations and the complex nature of current and future operations, applying the Cynefin model permits analysis of the interdependencies between the degree of centralization or decentralization and the level of complexity (see figure 1).[26] The more complex an OE is, the more decentralized possible opponents are, and the more "unknowns" exist, then the more adaptive and agile a commander and the staff have to be.



Graphic by Author

Figure 1. The Link between Complexity, Level Decentralization and the Starfish-Spider Continuum

This means that the starfish-spider continuum of an OE requires a starfish-spider continuum of military operational planning and actions. The revealed relationships will have significant leadership, procedural, educational, and organizational implications, though this essay focuses primarily on leadership and procedural implications. Incorporating the Cynefin model's categories of complexity requires adjusting the relationship between a commander and his or her staff, as well as adjusting the procedures by which commander and staff assess and determine viable courses of action.

Adapting Leadership to Better Understand and Define Problem Sets

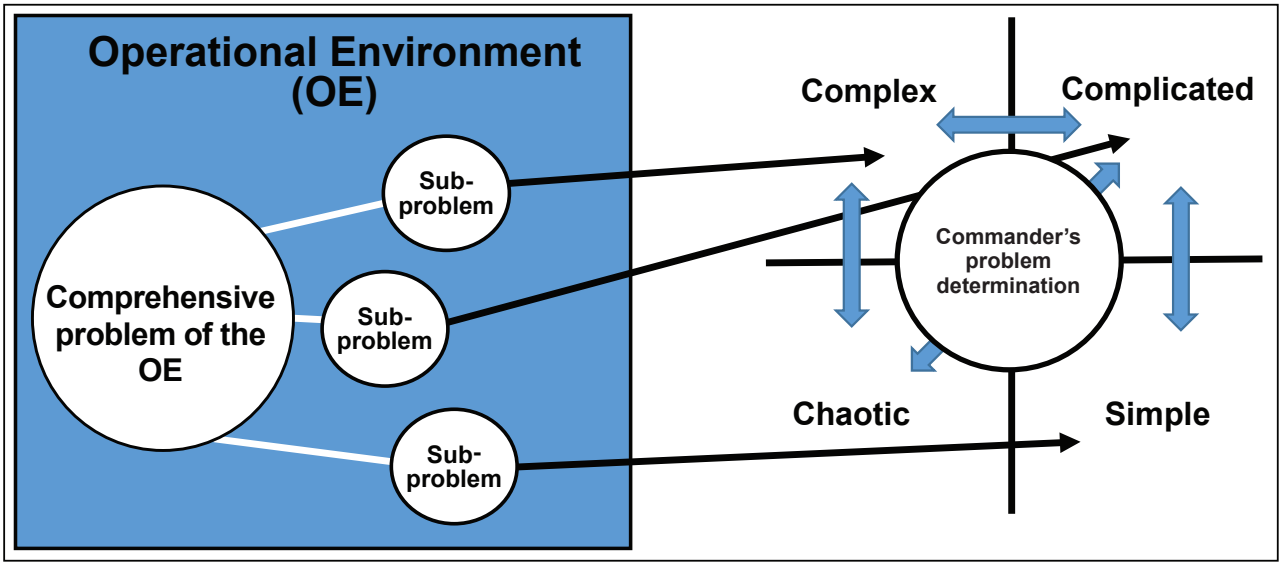
The major value of the leadership philosophy of Western forces, specifically mission command, is the collaborative work of commander and staff. The synthesis of the commander's experience with the analytical performance of the staff ideally guarantees creativity and appropriate solutions. Therefore, the commander guides his or her staff through an understanding of the environment based on experience, education, and situational awareness that enhances the ability to judge and decide. Consequently, the commander is key in the process of problem visualization and the development of an appropriate solution.[27]

However, the 2015 human dimension strategy describes OEs as rapidly changing.[28] In combination with the more decentralized strategy of current and future opponents, unclear nexuses of environmental players, and the absence of clear cause-effect relationships, the understanding of the problem and development of appropriate solutions becomes more challenging than before. The solution to a comprehensive problem will require a concerted, interdependent system of diversified solutions to subproblems than a one-size-fits-all approach. This approach takes into account when the interdependencies among known parameters are unclear or hidden. Further, the tempo of change can outdate the experience of a commander from a different battlefield. This means this creates more challenges for a commander, because of the fact that one should avoid the application of assumptions, solutions, and procedures from one specific battlefield or environment to another one.[29] Without knowing the environmental specifics and relationships, the pure transfer of these solutions will lead to failure. What are, then, the consequences for the commander and the organizational leader?

A proposed solution to these challenges is adjusting the role of the commander within the process of visualizing the problem. The commander's role should shift from that of too intense personal participation to achieve a solution to one concrete problem, to that of a director of a

collaborative process seeking the determination of a problem into subproblems and identifying their interdependencies and linkages. According to Snowden and Boone, overcontrol and order can endanger the solution of complex problems.[30] Consequently, a valuable tool to support the commander is the adoption and application of the Cynefin model for Army design methodology (ADM) and the military decision-making process (MDMP).

the interdependencies of the different subproblems and approaches, guides and facilitates the staff and the problem-solving teams with core questions, and avoids indirectly influencing the staff's analysis through issuing intent or directed guidance too early in the analysis process (see figure 2).[32] The commander is more a facilitator, catalyst, and ultimately the judge in the process of problem solving than a unique problem solver of the one special problem.[33]



Graphic by Author

Figure 2. The Link between Commander's Visualization of the Operational Environment and Problem Determination

Using his or her experience, knowledge, and education, the commander should guide the staff in determining a comprehensive problem into subproblems according to the quadrants of the Cynefin model. This distinguishes subproblems in simple, complicated, complex, and chaotic quadrants in order to have a clearer picture of the known and unknown factors and interdependencies.[31] Cause-effect relationships/correlations support this determination. Further, it allows the application of different approaches toward the determined subproblems based on their level of complexity. This also has implications for how the commander configures the staff to approach different determined subproblems.

The role of the commander is essential to this method, because of the commander's experience, knowledge, and ability to judge. Instead of being integrated into the problem solving of one specific problem, that commander supervises all multiquadrant approaches, focuses on Situational understanding, commander's experience, and the visualization of the comprehensive problem and its interdependent relationships enable the commander to finally judge and decide. This means the commander ought to act in a spectrum of being the boss and the facilitator in the process of solving complex problems.[34]

Mission command philosophy is a precondition for using such a model. Mutual trust in subordinates and their education, a shared understanding of the comprehensive picture and its subproblems, and clear guidance from the commander are essential to coordinate the collaborative work of the staff.[35] This leads to the procedural implications of this approach to defining problem sets.

Implications to the Military Decision-Making Process

Flexibility, continual reframing, and focus on interdependencies are the preconditions for the necessary agility

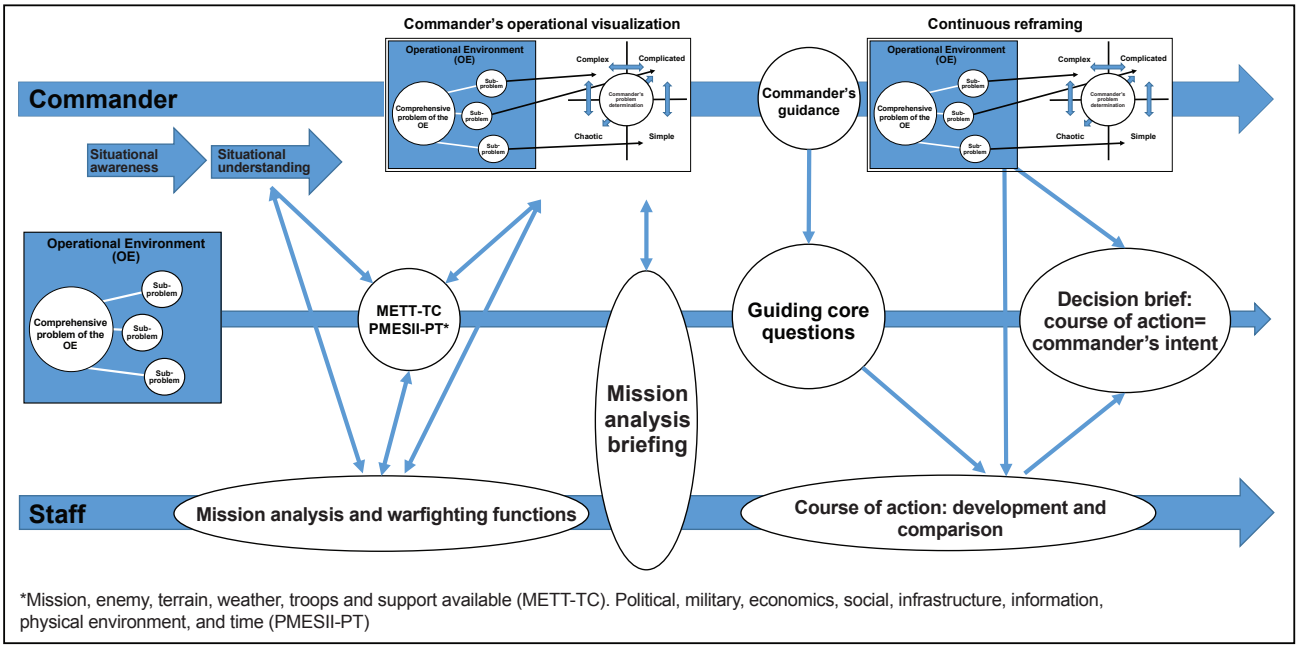


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Figure 3. Possible Procedural Application of the Cynefin Model within Army Decision Making and the Military Decision-Making Process

to act in a starfish-spider continuum, which influences ADM and MDMP procedurally. The commander and selected staff members visualize the problem within ADM. Their focus is the solution of the one "known" problem. Through transition to MDMP, the staff, from the perspective of their respective warfighting functions, add their view and analytical data to the commander's visualization that leads directly to the initial commander's intent and planning guidance for course of action (COA) development (see figure 3).[36] Although effective, this approach tends to lose the interdependencies because it could be too focused on finding one solution. Further, there is a danger that the steps of COA development are a validation rather than a refinement and adaptation of the commander's initial intent.

This might limit the staff's ability to think more broadly about possible unknown or hidden cause-effect relations against a more decentralized adversary. Additionally and if not aware, a tight personal participation of the commander could lead to the transfer of solutions from other battlefields without knowing all current circumstances.

Therefore, the commander should focus on problem determination, interdependencies, increasing the situational understanding needed to enable sound judgment, and the appropriate staff configuration in accordance with the chief of staff and the determined subproblems. In this proposed procedure, the chief of staff and the staff are responsible for understanding and solving the determined subproblems. The commander supervises through core guiding questions to the different staff elements that are based on interrelations among these subproblems.

Within MDMP, the process of understanding the operational environment peaks in the mission analysis briefing and core questions that have to be answered in the COA development. This means the commander guides the staff at the end of the mission analysis briefing with his questions related to the different interdependencies. In this proposed procedure, the commander states a clear COA development guidance rather than a clear intent that has to be validated. This maintains flexibility and avoids narrowing the focus of the staff. Nevertheless, it also bears the risk that a staff could lose track. Therefore, the commander continuously reframes—in the sense of the evaluation and refinement of the problem, subproblems, and their interdependencies in order to prevent ambiguity through the application of a conceptual ADM planning team in parallel with the MDMP.

Conclusion

Current and future OEs consist of a large number of interacting elements, making a forecast of clear and distinguishable cause-effect relations impossible. The boundaries between major combat operations and stability operations are blurring because of the numerous centralized and decentralized existent organizations. The military has to adapt its mindset, doctrine, and structure in order to succeed. This has implications for the procedural, educational, and organizational domains of a Western military organization. Further, the requirements to the leadership—commander and staff—domain will have the most significant impact to becoming and staying adaptive, agile, and flexible in a starfish-spider continuum of centralized and decentralized challenges. ■

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