Mission Command in Networked Forces: Adoption of Mission Command in Recent U.S. Navy and Air Force Doctrines and Operational Concepts*

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Abstract

In the recent years, the U.S. Navy and the U.S. Air Force formally adopted mission command in their respective doctrine. It signified departure for both services, which allegedly centralized command and control (C2) to an excessive degree. Shifting to a more decentralized C2 was in part response to the growing threat of China, and, to a lesser degree, of Russia. The militaries of both countries are widely expected to attack and disrupt C2 of U.S. forces in an event of an armed conflict with the United States, and decentralizing C2 would make the U.S. military less likely to be paralyzed under such attacks. However, there are elements in the operational concepts being developed by each of the services that require centralization of C2. Besides, some advocate that the concept of mission command be expanded to incorporate "horizontal" coordination and synchronization of actions of participating units among commanders involved, based on shared understanding and higher commander's intent.

Introduction: Centralization and Decentralization in Military Command and Control

In military operations, there is no more important function than "command and control," defined by the U.S. Department of Defense as "The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission."[1] Without C2, organized action by military forces would be impossible, as "military units degenerate into mobs, and the subordination of military force to policy is replaced by random violence."[2]

Milan Vego explains that there are two approaches to C2: centralization and decentralization. In centralized C2, authority is concentrated in a single senior commander or headquarters. Subordinate units are required to strictly follow detailed instructions and plans concerning their individual actions, greatly limiting the room for subordinate commanders to exercise independent judgment.[3] On the other hand, in decentralized C2, orders are concise, there is no need to wait for instructions or to report frequently, and subordinate commanders are expected to respond to

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1 Joint Chiefs of Staff, *DOD Dictionary of Military and Associated Terms* (Washington, DC, November 2021), s.v. "command and control."

2 U.S. Marine Corps, *MCDP 6 Command and Control* (Washington, DC, 2018), p. 1-3.

3 Milan Vego, *General Naval Tactics: Theory and Practice* (Annapolis, MD: Naval Institute Press, 2020), pp. 148–149.

constantly changing situations based on a shared understanding of the mission to be achieved.[4]

According to Martin van Creveld, centralization involves senior commanders reducing uncertainty for themselves by taking decision-making authority away from subordinate commanders and making decisions that would typically be left to the latter commanders. However, this leads to "less certainty at the bottom." Conversely, decentralization allows subordinate commanders to make decisions, but this is only possible "thanks to a readiness at higher headquarters to accept more uncertainty." In other words, there is an inherent trade-off between centralization and decentralization in C2.[5]

Given this tension between centralization and decentralization in military C2, factors like technological advancements, changes in warfare conditions, and organizational culture of forces can affect the degree of centralization or decentralization. Vego notes that "[b]oth centralized and decentralized C2 have some advantages and some disadvantages," and that since "[n]either method is suitable for all situations," the method to be primarily used "depends on the mission and the situation."[6]

The decentralized C2 approach has been conceptualized as "mission command." In the 1980s, the U.S. Army's AirLand Battle (ALB) doctrine required mission command to respond to dynamically changing battlefield situations.[7] In addition, the U.S. Marine Corps, in the post-Vietnam War reforms, adopted the concept of maneuver warfare as the Marines' "warfighting philosophy" and adopted mission command as part of this approach[8] (hereafter, unless otherwise specified, references to the Department of Defense, military services, or agencies indicate those of the United States). Furthermore, in the 2000s, the counterinsurgency (COIN) operations conducted in Iraq and Afghanistan led to a renewed recognition of the importance of mission command, especially within the Army. As Secretary of Defense Robert M. Gates noted, "…as in any counterinsurgency, so much of the decisive edge is provided by the initiative and the judgment of junior officers."[9]

The term "mission command" has primarily been used in relation to ground forces such as the Army and Marine Corps. This is unsurprising, given that the concept originated with *Auftragstaktik* (often translated as "mission tactics") in the Prussian and German Armies.[10] Considering this background, it is noteworthy that since the 2010s, there has been emerging interest

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4 Ibid., pp. 149–150.

5 Martin van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985), pp. 270, 274.

6 Vego, *General Naval Tactics*, p. 159.

7 Clinton J. Ancker, III, "The Evolution of Mission Command in U.S. Army Doctrine, 1905 to the Present," *Military Review*, 93, no. 2 (March/April 2013), pp. 47, 48; and Headquarters, Department of the Army, *FM 100-5 Operations* (Washington, DC, 1982), pp. 7-2, 7-3.

8 Fidelion Damian, "The Road to FMFM 1: The United States Marine Corps and Maneuver Warfare Doctrine, 1979-1989" (master's thesis, Kansas State University, 2008), p. 29; Daniel Ford, *A Vision So Noble: John Boyd, the OODA Loop, and America's War on Terror* (Durham, NH: Warbird Books, 2010), pp. 36–38; Frans P.B. Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (London: Routledge, 2007), pp. 48–49; John R. Boyd, *A Discourse on Winning and Losing*, ed. and comp. Grant T. Hammond (Maxwell AFB, AL: Air University Press, 2018), p. 94; Michael D. Wyly, "Lecture II: Mission Tactics," in William S. Lind, *Maneuver Warfare Handbook* (Boulder, CO: Praeger, 1985), pp. 91–97; and Kevin R. Clover, "Maneuver Warfare: Where Are We Now?" *Marine Corps Gazette,* vol. 72, no. 2 (February 1988), p. 55.

9 Robert M. Gates, "Reflection on Leadership," *Parameters*, vol. 38, no. 2 (Spring 2008), p. 13.

10 Donald Vandergriff, *Adopting Mission Command: Developing Leaders for a Superior Command Culture* (Annapolis, MD: Naval Institute Press, 2019), pp. 25–29.

within the Navy and Air Force communities in mission command, leading to its adoption within each service's doctrine.[11] In the Navy and Air Force, advances in information and communication technology directly connected aircraft, vessel, and other platforms to remote C2 nodes with target information and orders transmitted back and forth over networks. For these long-range capabilities to demonstrate effective combat power, it is necessary to synchronize the actions of platforms that belong to different units and often launch from geographically distant bases. This includes allocating and coordinating attack targets among different assets, such as between Air Force attack aircraft and Navy Aegis ships equipped with Tomahawk missiles. Another example would be a bomber departing from the Continental United States (CONUS) and flying to the Persian Gulf, receiving fuel from an aerial refueling tanker of the Air Mobility Command headquartered in Illinois and operating under the tactical control of an airborne warning and control system (AWACS) aircraft monitoring Middle Eastern airspace, and then delivering air strikes against extremist armed insurgents somewhere in the Middle East. Particularly in air operations, aircraft do not act alone and depend on support from various platforms to perform their missions.[12] This has required central coordination and driven extensive centralization of C2 around theater-level commanders, enabled by the overall networking of airpower. Given these points, it should be understood that the need for mission command in the Navy and Air Force today is driven by factors opposite to those that previously promoted centralization.

This paper aims to elucidate two points in connection with the Navy and Air Force's adoption of mission command. The first point examines why the Navy and Air Force came to adopt mission command after 2010. The second point is that even if the Navy and Air Force have adopted mission command, given Vego's observation that the C2 method should be chosen based on "the mission and the situation," it should be understood that there are still situations that necessitate overall coherence and centralization as a means to achieve it. Therefore, the second point explores what those situations entail.

To clarify these points, this paper has an analysis process as follows. Section 1 provides an overview of mission command, while Sections 2 and 3 explore the factors and backgrounds that led the Air Force and Navy, which had been progressing toward centralized C2, to emphasize mission command from the 2010s onward. This analysis focuses on the concepts of distributed operations that both services have been advancing in light of the possibility of military conflict with the major powers of China and Russia and the vulnerabilities[13] of U.S. forces in such scenarios, which the

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[11] This paper uses the term "doctrine" as well as the similar term "concept" with relation to methods of warfare. However, doctrine refers to "authoritative guidance" that has already been established within the military, and which is expected to be followed for operations under normal circumstances, unless there is an exceptional situation. On the other hand, a concept provides solutions to pressing issues that existing doctrines or capabilities cannot adequately address. Concepts undergo subsequent validation processes to assess their effectiveness, including field experiments with units. The documents from various militaries referenced in this paper include those at both the concept and doctrine stages. The writing reflects these distinctions as appropriate to their stage, but they are treated as common in the sense that they both describe ways of conducting warfare. See Joint Chiefs of Staff, *JP 1 Doctrine for the Armed Forces of the United States, Incorporating Change 1 12 July 2017* (Washington, DC, 2017), pp. VI-3, VI-9–VI-10.

[12] Frederick Coleman, "The Limited Utility of Mission Type Orders for ACE...and a Better Way to Execute Mission Command," *Mitchell Forum*, no. 49 (January 2023), p. 49.

[13] For details on how the U.S. Department of Defense came to view China and Russia as security threats and began anticipating armed conflicts with them, see Kikuchi Shigeo, *Beikokubo Keikaku ni Okeru "Pacing Threat" Toshite no Chugoku* [China as the "Pacing Threat" in U.S. Defense Planning], *NIDS Commentary*, no.

Department of Defense has particularly recognized since anti-access/area denial (A2/AD) threats were first referenced in the Quadrennial Defense Review Report of February 2010 (2010 QDR). Section 4 examines how both the Air Force and the Navy, while aiming to implement mission command, also require elements that ensure overall coherence. In particular, the section points out that the integration of fires and the coordination and synchronization of operations, which each service's emerging operational concepts are premised on, could drive centralization. Furthermore, it suggests that in order to meet the need for massed fires under C2 disruptions anticipated in armed conflicts with China and Russia, mission command, which has been conceptualized with a focus on the vertical hierarchy between commanders and subordinate commanders through delegation and decentralization, may evolve to include horizontal, independent cooperation among units participating in operations. Through these considerations, this paper seeks to develop a more nuanced understanding of mission command that better aligns with 21st century military operations.

1. What is "Mission Command"?

"Mission command" is generally defined along the lines of an "approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation."[14] The premise for requiring this type of decentralized C2 is the recognition that "war is inherently chaotic and uncertain" (Army Doctrine Publication (ADP) 6-0, "Mission Command: Command and Control of Army Forces"). No matter how meticulously a plan is prepared, "no plan can account for every possibility," necessitating sudden changes during execution. In addition, in combat, subordinate commanders are often in a better position to understand the situation, respond to threats, and seize fleeting opportunities. For this reason, it is essential not to impose "perfect order" on them. In other words, they must be granted the authority to exercise "ingenuity, innovation, and decision making to achieve the commander's intent when conditions change or current orders are no longer relevant."[15]

In mission command, orders are issued as "mission orders" or "mission-type orders." These orders present the subordinate commanders with the "mission" itself, meaning the results to be achieved, without prescribing the method for achieving the mission. "How a task is to be accomplished" is considered the "province of the subordinate" (ADP 6-0),[16] and thus orders are given without dictating how subordinate commanders should execute tasks, ensuring that they have maximum freedom of action.[17]

The most important element of orders to subordinate commanders is the "commander's intent," which is a "clear and concise expression of the purpose of the operation and the desired

191 (September 2, 2021), pp. 1–5.

14 Department of the Army, *ADP 6-0 Mission Command: Command and Control of the Army Forces* (Washington, DC, 2019), p. 1-3.

15 Ibid., pp. 1-3, 1-4, 1-5.

16 Ibid., p. 1-11.

17 Jörg Muth, *Command Culture: Officer Education in the U.S. Army and the German Armed Forces, 1901–1940, and the Consequences for World War II* (Denton, TX: University of North Texas Press, 2011), pp. 173–174; Robert M. Citino, *The Path to Blitzkrieg: Doctrine and Training in the German Army, 1920–39* (Mechanicsburg, PA: Stackpole, 1999), p. 13; and Antulio J. Echevarria II, *After Clausewitz: German Military Thinkers before the Great War* (Lawrence, KS: University Press of Kansas, 2000), p. 39.

military end state." The primary significance of the commander's intent lies in showing the "why" behind the mission. In other words, it clarifies the need for executing the operation, what is expected of the subordinates, why the mission must be undertaken, and the limits within which the subordinates may act. If they understand the commander's intent (typically, it is necessary to understand the intent of commanders two echelons above), subordinate commanders can make decisions appropriate to the situation on the front based on the commander's intent, even if circumstances change or if communication is disrupted and they cannot continuously seek guidance from higher command. It is believed that mission command cannot function at all without the commander's intent; therefore, it is essential that this intent is personally written by the commanders themselves, not by their staff.[18]

As is clear from the explanation thus far, mission command encourages the initiative of subordinate commanders. At the same time, it equally stresses pursuing "unity of effort," ensuring that each unit involved in an operation acts toward a common objective. The emphasis on the abovementioned commander's intent serves this function as it should "pull the various separate actions of the force together, establishing an underlying purpose and focus."[19] Mission command also requires "shared understanding" between the commander and subordinate commanders regarding the operational environment, objectives, and tasks, as this forms "the basis for unity of effort and subordinates' initiative."[20] Additionally, for this same reason, what is pursued in mission command is not merely initiative, but "*disciplined* initiative" (emphasis added) exercised by subordinate commanders "within the constraints of the commander's intent to achieve the desired end state."[21]

Thus, mission command encompasses the factors of decentralization and unity of effort. To effectively implement mission command, which simultaneously seeks decentralization and unity of effort, "mutual trust" between commanders and subordinate commanders is essential. Commanders must trust the abilities and judgment of their subordinates to delegate decision-making. Conversely, subordinate commanders can only exercise initiative when they are confident that their commander trusts them and will accept their decisions. This mutual trust can only be established if both the commanders and subordinate commanders possess "competence."[22]

There is an interrelationship among the factors discussed above. When trust and shared understanding between higher and lower echelons are established, commanders can permit their subordinate commanders discretion based on these relationships; thus, the orders issued by commanders will be closer to mission orders that concisely indicate what needs to be achieved. Conversely, if there is no trust and shared understanding, commanders may find it difficult to grant discretion to their subordinate commanders, leading to a tendency for micromanagement, where orders constrain the actions of subordinate units by even specifying methods of mission accomplishment in detail.[23] According to Vego, "[g]enerally speaking, the less the need for the subordinate commanders to exercise initiative, the greater the need for detailed orders and the less

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18 Department of the Army, *ADP 6-0*, pp. 1-5, 1-9–1-10; and U.S. Marine Corps, *MCDP 6*, p. 3-9.
19 U.S. Marine Corps, *MCDP 6*, p. 3-9.
20 Department of the Army, *ADP 6-0*, p. 1-8.
21 Ibid., pp. 1-11–1-12.
22 Ibid., p. 1-7.
23 Ibid., p. 1-6.

need for communicating the commander's intent."[24] In other words, there is a trade-off between the level of detail in orders and the discretion permitted to subordinate commanders. Furthermore, relevant to the theme of this paper, advancements in communications technology have made micromanagement more feasible.[25] In addition, it is frequently pointed out that mission command cannot function without overall organizational "cohesion." This is because the abovementioned mutual trust is formed only through repeated close interactions.[26] From this perspective, the difference in the level of cohesion is what explains a point often noted about the Marine Corps and the Army, namely that the Marine Corps, being smaller in scale and with all members regarded as "Marines," regardless of their branch of service or specialties, practices mission command more effectively than the Army, which is the largest among the U.S. military services and is composed of highly distinct communities organized along branches of service.

2. U.S. Air Force: From "Centralized Control" to "Distributed Control"

(1) "Centralized Control and Decentralized Execution" (CCDE) as a "Fundamental Organizing Principle" of Airpower

The Air Force is considered to have the most centralized C2 within the U.S. military. This is based on the idea that to operate airpower effectively and efficiently, a single commander should control the entire air force within a theater of operations.[27] This concept originated in part from what is considered "one of the greatest defeats in our history," the Battle of Kasserine Pass, that took place in central-western Tunisia in February 1943 during World War II. One reason articulated at the time for this defeat was that each air unit was placed under the control of the ground commander it supported, resulting in overall ineffective utilization of airpower.[28] The centralization of C2 over airpower was quickly incorporated into the U.S. Army Air Forces' doctrine in July 1943.[29] However, in terms of actual operations, "During the initial engagements of World War II and through the entire Vietnam conflict, command of US airpower was fragmented and controlled by competing commanders."[30] This issue of who would command which air assets, and in what manner, remained a "vexing control issue" for the U.S. Air Force.[31] The issue was settled following the Gulf War in 1991, when air operations, including all military aircraft and Tomahawk cruise missiles, were placed under the commander of the U.S. Central Command Air Forces.[32]

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[24] Vego, *General Naval Tactics*, p. 159.

[25] Ibid., p. 149.

[26] Joe Labarbera, "The Sinews of Leadership: Mission Command Requires a Culture of Cohesion," in *Mission Command: The Who, What, Where, When and Why an Anthology*, ed. Donald Vandergriff and Stephen Webber (self-pub., 2017), pp. 3–5.

[27] Clint Hinote, *Centralized Control and Decentralized Execution: A Catchphrase in Crisis?* (Maxwell AFB, AL: Air Force Research Institute, 2009), p. 10.

[28] Ibid., pp. 7, 8; Rick Atkinson, *An Army at Dawn: The War in North Africa, 1942–1943* (New York: Owl Books, 2002), p. 390; and Leland Kinsey Cowie II, "The Ghosts of Kasserine Pass: Maximizing the Effectiveness of Airpower," *Joint Force Quarterly*, no. 92 (1st quarter 2019), pp. 75–77.

[29] War Department, *FM 100-20 Command and Employment of Air Power* (Washington, DC: U.S. Government Printing Office, 1944), pp. 1, 2.

[30] U.S. Air Force, *AFDD 1 Air Force Basic Doctrine* (Maxwell AFB, AL: Headquarters Air Force Doctrine Center, 1997), p. 23.

[31] *AFMAN 1-1, Basic Aerospace Doctrine of the United States Air Force*, quoted in Hinote, *Centralized Control*, p. 10.

[32] U.S. Air Force, *AFDD 1*, p. 23.

As this background shows, the centralization of C2 over airpower has two aspects. The first is the independence of airpower from ground commanders, with airpower commanded by an Air Force officer, not the ground commander. The second aspect is "economic," where the theater-level commander optimally allocates overall airpower across the theater to respond to the fact that "the demand for airpower is high in modern warfare, and the supply is relatively low."[33] Furthermore, beyond the issue of centralizing command of air operations, this also includes the issue of micromanagement, meaning how much control a theater-level commander should exert over the actions of individual assets.

"Centralized control and decentralized execution" (CCDE) is a concise expression of the centralization of air operations as a "fundamental organizing principle" of air force doctrine.[34] CCDE's "centralized control" refers to "placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations."[35] According to the 2015 edition of the "Air Force Doctrine Volume 1, Air Force Basic Doctrine" (AFDD 1), airpower is a "powerful, highly desired yet limited force," and to "balance and prioritize the use," it is essential not to fragment airpower but to place control of all air power deployed in the theater under a "single Airman who maintains [a] broad, strategic perspective."[36] This approach enables timely deployment of forces to where they are needed, wherein lies "centrally controlled flexibility."[37] This is the essence of "centralized control."

Conversely, the other principle within CCDE, "decentralized execution," refers to "delegation of execution authority to subordinate commanders."[38] The 2015 edition of AFDD 1 explains that in order to ensure the "flexibility to take advantage of tactical opportunities and to effectively respond to shifting local circumstances," "on-scene decisions" should be made by "front-line decision makers" such as strike package leaders, air battle managers, and forward air controllers.[39]

Here, "single Airman" typically refers to the joint force air component commander (JFACC), who is responsible for centralized command of air operations within a joint force. In cases involving allied or coalition forces, the JFACC becomes the combined force air component commander (CFACC). The JFACC exercises C2 of air operations through the air operations center (AOC) established directly under his or her command.[40] The AOC prepares the air tasking order

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33 Hinote, *Centralized Control*, p. 13.

34 U.S. Air Force, *Basic Doctrine*, vol. 1 (Maxwell AFB, AL: LeMay Center, 2015), "Centralized Control and Decentralized Execution."

35 Joint Chiefs of Staff, *JP 3-30 Joint Air Operations* (Washington, DC, 2021), p. GL-6.

36 U.S. Air Force, *Basic Doctrine*.

37 Jeffrey W. Donnithorne, *Four Guardians: A Principled Agent View of American Civil-Military Relations* (Baltimore, MD: Johns Hopkins University Press, 2018), p. 117.

38 Joint Chiefs of Staff, *JP 3-30*, p. GL-6.

39 U.S. Air Force, *Basic Doctrine*.

40 The AOC serves as the "senior agency" of the JFACC, and "provides command and control of Air Force air and space operations and coordinates with other components and Services." A regional AOC is typically established at the theater level, including three for the Indo-Pacific Command, one for the European and Africa Commands, one for the Central Command, and one for the Northern Command. In addition, functional AOCs are established for specific commands such as the Air Mobility Command and Air Force Global Strike Command. Furthermore, the three AOCs established within the Indo-Pacific Command are located to cover operations in the vicinity of Alaska, the U.S. Forces Korea, and the rest of the Indo-Pacific Command's area of responsibility. See U.S. Air Force, *AFDP 3-30 Command and Control* (Maxwell AFB, AL: LeMay Center, 2020), pp. 48–51; Joint Chiefs of Staff, *DOD Dictionary*, s.v. "air operations center"; and "USAF Major

(ATO), a detailed document tasking "projected sorties, capabilities, and/or forces to targets and specific missions," which it disseminates to each unit.[41] In this way, the JFACC and AOC exert comprehensive control over airpower across an entire theater through the ATO.

(2) Proposed Changes to the CCDE Principles and Mission Command

Although CCDE encompasses both centralized and decentralized aspects, the trend toward centralization has intensified with the networking of U.S. air operations. In a 2009 study, Clint Hinote noted that with ICT advances since the 1990s, "it became possible—even easy—for the JFACC, a commander at the operational level of war, to become personally involved in tactical execution, even to the point of directing the actions of individual aircraft." He also noted that this became a reality with Operation Deliberate Force in 1995, an aerial bombing campaign conducted against targets in Bosnia and Herzegovina.[42]

Centralization around the JFACC and AOC also brings vulnerabilities. This is because if there was an attack on the AOC, which is a fixed, ground-based facility, or if communication between the JFACC/AOC and individual units was disrupted, it could paralyze the entire air force under its command. In a 2014 paper, retired U.S. Air Force Lieutenant General David A. Deptula of the Mitchell Institute for Aerospace Studies, an affiliate of the then-Air Force Association, pointed out that the AOC, which serves as "most senior organizational element" of the theater air control system (TACS) that is in charge of "translating the combatant commander's air strategy into executable plans," is an "extremely lucrative target" for adversaries' long-range missiles.[43] Similarly, Gene Kamena of the U.S. Air Force's Air War College pointed out that the "[c]urrent Air Force's C2 processes and structures are centralized, rigid, and vulnerable," warning, "If the AOC is disrupted or destroyed, [the Air Force's] operations become hindered and desynchronized."[44]

In this context, there have been calls from within the Air Force for changes to centralization of C2 in the Air Force, based on the possibility of disruptions to U.S. military C2 in armed conflicts with China or Russia. In a 2014 co-authored paper, Michael Hostage III, commander of the Air Combat Command (ACC) noted that CCDE is "incomplete when applied to modern contested and denied operations."[45] Hostage explained that CCDE's "insufficiency" had not been evidenced in past military operations, including those in Iraq and Afghanistan, because there had been no interference with the U.S. military's C2, communications, datalinks, and navigation systems, which underpin CCDE. However, he pointed out that "in antiaccess/area-denial (A2/AD) environments, the resilience of our networks, datalinks, and communications will almost certainly be contested."[46] Thus, Hostage proposed replacing CCDE with "centralized command, distributed

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Commands and Air National Guard," *Air & Space Forces Magazine*, vol. 106, no. 7 (June/July 2023), pp. 77, 83, 84.

41 Joint Chiefs of Staff, *JP 3-30*, p. GL-6.

42 Hinote, *Centralized Control*, p. 11.

43 David A. Deptula, "A New Era for Command and Control of Aerospace Operations," *Air & Space Power Journal*, vol. 28, no. 4 (July/August 2014), p. 7.

44 Gene Kamena, "Before Mission Command," *Wild Blue Yonder,* April 20, 2023, https://www.airuniversity.af.edu/Wild-Blue-Yonder/Articles/Article-Display/Article/3368347/before-mission-command/.

45 The terms "contested and denied" or simply "contested" refer to situations in which U.S. forces are subject to attacks from adversary nations, thereby constraining their operations. These terms are often used as substitutes for the phrase "A2/AD environment."

46 Gilmary Michael Hostage III and Larry R. Broadwell Jr., "Resilient Command and Control: The Need for

control, and decentralized execution" (CC-DC-DE).[47] CC-DC-DE is characterized by its inclusion of "distributed control," which enables "subordinate commanders, organizations, operations centers, and battle management command and control (BMC2) platforms" to control air operations in the event of communications disruption between the JFACC/AOC and subordinate units.[48]

Hostage's thinking was first reflected in Air Force doctrine documents in 2020. In March 2020, the Air Force issued AFDN 1-20: "USAF Role in Joint All-Domain Operations" as an Air Force response to the Joint All Domain Operations (JADO), sponsored by the Joint Staff. This document stated that there will be no "guarantee [of] continual reachback [Note: Accessing information residing in higher headquarters or in CONUS by lower-echelon, frontline units] in a contested environment," and that in the future, "JADO [will] require greater decentralized execution, a higher degree of delegated authority, and less dependence on central planning and direction of missions."[49] Additionally, AFDN 1-20 explained the need for mission command, in which commanders clearly convey their intent so that subordinate commanders are empowered to act on that intent without further guidance.[50]

Table. Centralized command, distributed control, and decentralized execution (CC-DC-DE) principles defined in the 2021 edition of AFDP 1: "The Air Force"

Centralized command	Centralized command gives the commander (usually the JFACC) the **responsibility** and **authority** for planning, directing and coordinating a military operation using the C2 philosophy of mission command. It empowers the air component commander to respond to changes in the environment and enables priority and balance while still allowing subordinate echelons to exercise initiative. It preserves flexibility and versatility at the **operational level**.
Distributed control	Distributed control enables commanders (usually the JFACC) to **delegate planning and coordination activities to dispersed locations or subordinate echelons** in order to achieve an effective span of control. It allows subordinate commanders to respond to changes in the operational environment and take advantage of fleeting opportunities based on the clearly communicated commander's intent. Commanders should empower subordinates at the lowest capable level through **mission-type orders (MTOs)**, and with command by negation.
Decentralized execution	Decentralized execution is the delegation of authority to achieve effective span of control and foster disciplined initiative at the **tactical level**. It allows subordinates to exploit fleeting opportunities in dynamic situations. To achieve decentralized execution, the JFACC and subordinate echelons use **MTOs** with clearly communicated **commander's intent** to empower **front-line decision makers** (e.g., strike package leaders, air battle managers, forward air controllers) to make effective on-scene decisions.

(Source) U.S. Air Force, *AFDP 1 The Air Force* (Maxwell AFB, AL: LeMay Center, 2021), pp. 13, 14.

Distributed Control," *Joint Force Quarterly*, no. 74 (3rd Quarterly, 2014), p. 38.

47 Ibid.

48 Hostage and others identify E-2 airborne early warning aircraft, E-3 AWACS aircraft, and E-8 JSTARS as BMC2 platforms that assume control activities. Ibid., pp. 38, 39.

49 U.S. Air Force, *AFDN 1-20 USAF Role in Joint All-Domain Operations* (Maxwell AFB, AL: LeMay Center, 2020), p. 5.

50 Ibid., p. 6.

Furthermore, in April 2021 during the revision of the capstone doctrine AFDP 1: "The Air Force,"[51] the U.S. Air Force "formally [established] mission command as the philosophy for the command & control of airpower"[52] and adopted the CC-DC-DE framework to embody it (see the table for more on CC-DC-DE). For this reason, the 2021 revision is considered "the most sweeping change of Air Force basic doctrine in the service's history."[53] Notably, AFDP 1 positioned mission command as the first "philosophy for the C2 of airpower" and positioned CC-DC-DE, which was proposed by Hostage in 2014, as an embodiment of mission command.[54]

The primary feature of CC-DC-DE is the replacement of "centralized control" with "distributed control." Here, mission command is realized by delegating the "planning and coordination activities" previously handled by the AOC at the theater level to "dispersed locations or subordinate echelons." In this delegation, the JFACC and AOC issue mission-type orders to "distributed locations or subordinate echelons,"[55] allowing "subordinate commanders to respond to changes in the operational environment and take advantage of fleeting opportunities" based on the commander's intent expressed in the orders.[56] To mitigate the vulnerability of the AOC, there is also an approach being explored to physically distribute its functions.[57] However, the purpose of distributed control is to ensure that Air Force units can continue overall operations even if communication between the AOC and subordinate units is disrupted. In the Air Force, distributed control is regarded as a way to concretize the decentralization aspect of mission command by delegating control of air operations from the AOC to C2 nodes below it.[58]

Also in relation to "distributed control" as an embodiment of mission command, under CC-DC-DE, orders are issued as mission-type orders when appropriate. Traditionally, the ATO created by the AOC has been a detailed document that tasks "projected sorties, capabilities, and/or forces to targets and specific missions." However, as noted by Kamena above, the ATO "lacks an emphasis on the Commander's Intent" and "is not a Mission-Type Order because it does not provide sufficient guidance if or when the situation changes."[59] To repeat Vego's point mentioned

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51 A "capstone doctrine" is a core doctrinal document that outlines the fundamental principles of each service's operations, and branch-specific doctrinal documents are developed from it. Examples of capstone doctrines include the Air Force's former Air Force Doctrine Document (AFDD) 1 and current Air Force Doctrine Publication (AFDP) 1, the Navy's Navy Doctrine Publication (NDP) 1, the Marine Corps' Marine Corps Doctrinal Publication (MDCP) 1, and the Army's Army Doctrine Publication (ADP) 3-0.

52 CQ Brown (@GenCQBrownJr), "The New Air Force Doctrine Publication (AFDP) -1 Formally Establishes Mission Command as the Philosophy for the Command & Control of Airpower," Twitter, April 22, 2021, https://twitter.com/gencqbrownjr/status/1385264895348903941.

53 Air University Public Affairs, "Air Force Rewrites Basic Doctrine, Focuses on Mission Command, Airpower Evolution," April 22, 2021, https://www.af.mil/News/Article-Display/Article/2581921/air-force-rewrites-basic-doctrine-focuses-on-mission-command-airpower-evolution/.

54 U.S. Air Force, *AFDP 1 Air Force* (Maxwell AFB, AL: Curtis E. LeMay Center, 2021), p. 13.

55 Air University, "Visualizing ACE," YouTube video, 5:16, https://www.youtube.com/watch?v=LKGeCpd0OjM&t=72s.

56 U.S. Air Force, *AFDP 1*, p. 13.

57 Shaun Waterman, "Using 5G to Create a 'Disaggregated and Distributed' AOC," April 7, 2021, *Air & Space Forces Magazine*, https://www.airandspaceforces.com/using-5g-to-create-a-disaggregated-and-distributed-aoc/.

58 For the view that the AOC presents the commander's intent in the form of mission orders, which in turn allows subordinate C2 nodes to create specific orders and oversee air operations as an embodiment of mission command, see, Trent R. Carpenter, "Command and Control of Joint Air Operations through Mission Command," *Air & Space Power Journal*, vol. 30, no. 2 (Summer 2016), p. 56.

59 Kamena, "Before Mission Command."

earlier, "the less need for the subordinate commanders to exercise initiative, the greater the need for detailed orders and the less need for communicating the commander's intent." Conversely, when on-site decision-making is required, it becomes necessary to provide higher-level guidelines or explain the "why," forming the basis for judgments in light of evolving on-the-ground situations. Thus, the emphasis on mission-type orders in CC-DC-DE indicates orientation toward mission command.

(3) Mission Command in Agile Combat Employment (ACE)

The Air Force's adoption of mission command is also driven by its goal of pursuing distributed operations under agile combat employment (ACE). Following the consolidation of U.S. military bases after the Cold War, the Air Force's overseas bases became increasingly concentrated in fewer, large bases known as "main operating bases" (MOBs). As these MOBs have increasingly fallen within the range of adversaries' long-range strike capabilities, ACE was introduced as a measure to mitigate the associated risks.[60]

According to the Air Force Doctrine Note (AFDN) 1-21: "Agile Combat Employment" (2022), ACE is defined as "[a] scheme of maneuver executed within threat timelines to increase survivability while generating combat power." Whereas traditional Air Force operations were conducted from MOBs, ACE involves dividing airpower into small groups, deploying them to "austere locations" without large facilities, and conducting operations from there, as well as rapidly changing bases of operations as needed.[61] It is expected that ACE "complicates the enemy's targeting process" and "increase[s] survivability" of U.S. forces through this dispersion and mobility of airpower.[62]

One element enabling ACE that is highlighted by AFDN 1-21 is mission command, which "empower[s] subordinates at the lowest capable level to make decisions and take decisive action at their level." AFDN 1-21 also links mission command to the possibility of armed conflict with Russia or China in its statement that mission command "provides the flexibility and agility required to seize opportunities despite enemy denial or degradation of communications" during expected "future peer conflicts."[63]

The connection between ACE, a distributed operations concept, and the introduction of mission command in the Air Force is further supported by the fact that ACE originated as an initiative of the Pacific Air Forces (PACAF). Since 2013, PACAF has conducted the "Rapid Raptor" program, which swiftly deploys a package of four F-22 fighters, along with a single C-17 transport aircraft carrying maintenance personnel, fuel, equipment, and materials needed for the fighters' operations, from Air Force bases in Hawaii or Alaska to bases in the Western Pacific. The goal is to have these aircraft ready to launch from the new location within 24 hours of deployment.[64] The

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60 U.S. Air Force, *AFDN 1-21 Agile Combat Employment* (Maxwell AFB: LeMay Center, 2022), p. 1.

61 Greg Hadley, "Brown: Air Force May Never 'Slap the Table,' Finish Iterating ACE," September 27, 2022, Air and Space Forces Association, https://www.airandspaceforces.com/brown-air-force-may-never-slap-the-table-on-ace/.

62 U.S. Air Force, *AFDN 1-21*, pp. 2, 3.

63 Ibid., pp. 5, 7.

64 Amy McCullough, "Don't Call It a Comeback," *Air Force Magazine*, vol. 98, no. 7 (July 2015), p. 25; and Marc V. Schanz, "Rapid Raptor Package," September 26, 2013, Air and Space Forces Association, https://www.airandspaceforces.com/box092613rapid/.

Rapid Raptor training was designed to both enable the flexible use of the limited number of F-22s and to respond to China's long-range strike capabilities.[65] In 2017, this initiative evolved into ACE, focusing on In 2017, this initiative evolved into ACE, focused on addressing questions such as "How do we operationally maneuver that? How do we work the command and control for that? How do we...still tie [distributed operation of aircraft] into the bigger picture?"[66] With General Charles Q. Brown, Jr.,[67] who endeavored for the adoption of ACE across the Air Force while serving as PACAF commander, assuming the office of chief of staff of the Air Force in August 2020, ACE was established as an official initiative throughout the Air Force.[68]

PACAF, which had been promoting Rapid Raptor, disclosed in a 2014 strategic document that it had adopted CC-DC-DE ahead of the rest of the Air Force.[69] In addition, Steven L. Basham, PACAF Director of Strategy, Plans, and Programs, described in a 2015 paper that CC-DC-DE "embodies the spirit of an idea of mission command" by enabling the completion of missions through the provision of "appropriate levels of guidance, authority, and trust" to "all war fighters." He explained that implementing distributed control within CC-DC-DE requires mission command, unity of effort based on commander's intent, and an agile, flexible theater air control system.[70] Furthermore, in a February 2020 interview, then-PACAF Commander General Brown also cited the introduction of decentralized C2 as a change brought by ACE within PACAF.[71] These developments indicate that ACE was introduced premised on mission command.

The examination in this section reveals that the Air Force came to adopt mission command in recognition of the risks posed by centralized C2 in potential armed conflicts with China or Russia, and in order to ensure operational continuity even if C2 and communications are disrupted. Furthermore, it is evident that this shift was driven by the Air Force's pursuit of distributed operations through ACE, based on the premise of potential armed conflict with the aforementioned great powers.

3. U.S. Navy: Distributed Maritime Operations (DMO) and Mission Command

(1) Centralization of C2 in the Navy

The U.S. Navy inherited many traditions from the British Navy, and is often characterized by a strong

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65 David A. Williamson, "Pacific Air Forces' Power Projection: Sustaining Peace, Prosperity, and Freedom," *Air & Space Power Journal*, vol. 29, no. 1 (January/February 2015), pp. 58–59.

66 Amy Hudson, "ACE in the Hole," March 30, 2017, Air and Space Forces Association, https://www.airandspaceforces.com/article/ace-in-the-hole/; and Amy Hudson, "Rapid Raptor 2.0," March 7, 2017, Air and Space Forces Association, https://www.airandspaceforces.com/rapid-raptor-2-0/.

67 "What's on the Mind of Gen. C.Q. Brown," *Air Force Magazine*, vol. 103, no. 4 (April 2020), p. 9; and Jennifer Hlad and Amy McCullough, "ACE-ing the Test: WestPac Exercise Stresses Agile Combat Employment," *Air Force Magazine*, vol. 103, no. 5 (May 2020), p. 40.

68 The Department of the Air Force Posture Statement, Fiscal Year 2022, submitted to Congress the year after General Charles Q. Brown assumed the role of Air Force Chief of Staff, identified ACE as a "new approach." However, the 2021 posture statement, submitted in 2020 by Brown's predecessor, General David L. Goldfein, included no mention of ACE.

69 Pacific Air Forces, *Pacific Air Forces: Command Strategy* (Hickam AFB, HI, 2014), p. 10; and Headquarters Pacific Air Forces Public Affairs, "PACAF Modifies Command Strategy," October 10, 2023, PACAF, https://www.pacaf.af.mil/News/Article-Display/Article/591127/pacaf-modifies-command-strategy/.

70 Steven L. Basham and Nelson D. Rouleau, "A Rebalance Strategy for Pacific Air Forces Flight Plan to Runways and Relationships," *Air & Space Power Journal*, vol. 29, no. 1 (January/February 2015), p. 11.

71 "What's on the Mind of Gen. C.Q. Brown," p. 9.

sense of "independent action and initiative," where "independent command… or… independent initiative… form an important part of Navy ethos."[72] This arises from the need for individual commanders to make independent decisions in maritime combat far from higher command. This is exemplified by principles such as the "Nelson touch," where subordinate commanders are empowered to respond independently in combat while fully incorporating commander's intent, and "command by negation," where superiors refrain from intervening unless there is an issue.[73]

However, even the U.S. Navy has not been immune to centralization, in part due to advancements in communication technology.[74] During World War II, Admiral Ernest J. King, who served as commander in chief of the United States Fleet and chief of naval operations, issued a directive on January 21, 1941, while he was commander of the Atlantic Fleet, titled "Exercise of Command—Excess of Detail in Orders and Instructions." In it, he criticized the pervasive practice in the Navy of issuing orders not only on "what" to do but also on "how" it should be done. He urged a return to the "essential element of command," which is "initiative of the subordinate." King argued that in a war against the Axis powers, commanders would neither have the time nor the opportunity to involve themselves in the finer details of their subordinates' actions and that it was essential to trust subordinates to carry out their assigned missions as they saw fit.[75]

Nevertheless, it has been noted that naval operations became even more centralized during the Cold War. This development is attributed to the influence of the composite warfare commander (CWC), the C2 framework developed for operations of carrier strike groups (CSGs) developed during that period. Kit de Angelis and Jason Garfield pointed out in a 2016 paper that although CWC was designed to enable "command by negation," it became a tool for micromanagement through intrusive oversight and control from the higher in the chain of command. They brought up instances where staffs of higher headquarters were issuing detailed "rudder and engine orders" over chat.[76] In addition, Dale C. Rielage noted that since the 1990s, naval air units operating under the command of the JFACC have come under the centralization influence of the Air Force.[77] Moreover, according to Vego, "advances in information technologies, instead of resulting in much greater freedom of action for subordinate commanders, have actually become a highly effective tool…for reducing and even eliminating room for subordinates to exercise the necessary degree of initiative in carrying out their assigned missions."[78]

(2) Calls for Mission Command in the Navy

The reassessment of C2 in the Navy, which has been criticized for increased centralization, was

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72 S. Rebecca Zimmerman, et al., *Movement and Maneuver: Culture and the Competition of Influence among the U.S. Military Services* (Santa Monica, CA: RAND, 2019), p. 53.

73 Graham Scarbro, "Go Straight at 'Em!': Training and Operating with Mission Command," *Proceedings*, vol. 145, no. 5 (May 2019), p. 23.

74 Vego, *General Naval Tactics*, p. 152.

75 Thomas B. Buell, *Master of Seapower: A Biography of Fleet Admiral Ernest J. King*, first Naval Institute Press paperback edition (Annapolis, MD: Naval Institute Press, 2012), pp. 521, 522; and Milan Vego, *Operational Warfare at Sea: Theory and Practice*, 2nd ed. (London: Routledge, 2017), p. 93.

76 Kit de Angelis and Jason Garfield, "Give Commanders the Authority," *Proceedings*, vol. 142, no. 10 (October 2016), p. 19.

77 Dale C. Rielage, "Act on Commander's Intent: The Navy Must Return to a Decentralized Command-and-Control Culture to Produce Combat Victories," *Proceedings*, vol. 143, no. 4 (April 2017), pp. 32–37.

78 Vego, *General Naval Tactics*, p. 149.

prompted by the U.S. Navy's response to China's growing military threat that led it to pursue distributed operations through the concept of "distributed lethality" (DL), later expanded into the "distributed maritime operations" (DMO) concept. DL was introduced by Thomas Rowden, commander of the Pacific Fleet Naval Surface Forces, et al. in the January 2015 issue of *Proceedings*. Recognizing that the U.S. Navy's sea control "can no longer be assumed" due to the rising Chinese threat, Rowden proposed enhancing the anti-ship attack capabilities of the surface force ships, which had primarily been assigned to escort duties for CSGs and land-attack missions, and separating them from the CSGs and deploying them as "hunter-killer" surface action groups (SAGs) specifically for anti-ship missions. The intention was to "spread the playing field" by deploying SAGs operating independently from the CSGs to attack enemy vessels from multiple attack axes, thereby forcing adversaries to allocate their forces defensively across multiple fronts.[79]

Furthermore, the DL concept was adopted as the operational concept for the entire surface force in January 2017 with the publication of "Surface Force Strategy: Return to Sea Control"[80] and later incorporated as the Navy-wide concept DMO in December 2018 with the release of "A Design for Maintaining Maritime Superiority, Version 2.0."[81] According to "Navigation Plan 2022" published in July 2022 by then-Chief of Naval Operations Michael M. Gilday, the DMO concept has the following key features: (1) Distribution of "[l]ong-range precision fires across all domains and platforms with greater reach enable naval forces to strike hostile targets while increasing our own survivability," (2) "Distributing forces geographically and in all domains enables them to threaten an adversary from multiple attack axes," and (3) "Connecting sensors, weapons, and decision-makers across all domains enables naval forces to mass firepower and influence without massing forces."[82] The explanation in "Navigation Plan 2022" also indicates that the DMO concept is premised on connectivity via networks.

As discussions on DL and subsequently the DMO concept progressed, references to decentralized C2 began to appear from the Navy's leadership. In January 2016, Chief of Naval Operations John M. Richardson released "A Design for Maintaining Maritime Superiority, Version 1.0," in which he referred to the core concepts of mission command with explanations such as the "need for the Navy to prepare for decentralized operations, guided by commander's intent," and "The ability to achieve this end is reliant on the trust and confidence that is based on a clear understanding, among peers and between commanders and subordinates, of the risk that can be tolerated."[83] Furthermore, the aforementioned "A Design for Maintaining Maritime Superiority, Version 2.0" (2018) positioned the DMO concept as one that would "invigorate and continually reinforce our culture of mission command."[84]

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79 Thomas Rowden, Peter Gumataotao, and Peter Fanta, "'Distributed Lethality'," *Proceedings*, vol. 141, no. 1 (January 2015), https://www.usni.org/magazines/proceedings/2015/january/distributed-lethality.

80 Commander, Naval Surface Force, *Surface Force Strategy: Return to Sea Control* (n.p., 2017), https://media.defense.gov/2020/May/18/2002302052/-1/-1/1/SURFACEFORCESTRATEGY-RETURNTOSEACONTROL.PDF.

81 John M. Richardson, *A Design for Maintaining Maritime Superiority, Version 2.0* (Washington, DC: OCNO, 2018), p. 8.

82 Michael M. Gilday, *Navigation Plan 2022* (Washington, DC: OCNO, 2022), p. 8.

83 John M. Richardson, *A Design for Maintaining Maritime Superiority, Version 1.0* (Washington, DC: OCNO, 2016), p. 5.

84 Richardson, *A Design, Version 2.0*, pp. 8, 9.

Inspired by these developments, discussions on decentralized C2 have become more active among Navy personnel. De Angelis and Garfield, as previously mentioned, noted that to realize the DL concept for surface ships, "A commanding officer must be empowered to make the decisions necessary to command his or her ship with little or no guidance from higher headquarters prior to, and especially upon, the commencement of hostilities."[85] Similarly, Andrew Beeler argued in his 2017 paper titled "Distributed Lethality Requires Distributing Authority" that to realize the DL concept, where "surface ships as individual units may engage the enemy independently of the carrier strike group," "commanding officers (COs) must be empowered to fight their ships independently and break from the current leadership model in the carrier strike groups."[86]

In the Navy, decentralized C2 is also advocated as a response to a D-DIL (denied, disconnected, intermittent, low-bandwidth) environment anticipated during a potential armed conflict with China, due to enemy interference and attacks. Daniel Stefanus described operations in a D-DIL environment as a "Dark Battle," in which "[s]ubordinate warfighters need to be certain of their commander's thinking, perspective, and permission thresholds on a granular level, so they can fight properly once communications go dark." To achieve this, he pointed out the need for an "intimate relationship that differs starkly from the bureaucratic distance that currently divides staffs and units."[87] Scott Swift, then commander of the Pacific Fleet, also cited anticipated communication and network disruption in future large-scale conflicts as a rationale for the necessity of mission command in a 2018 paper.[88]

The Navy officially adopted mission command in April 2020 when it revised its capstone doctrine, "NDP 1: Naval Warfare," as part of the "Naval Service" alongside the Marine Corps and Coast Guard. While NDP 1 recognizes the merits of the use of networks in naval combat, it states, "[W]e actively foster decentralized operations while preserving unity of effort," as systems may be disrupted by enemy actions or failure of their sub-systems, and alternatively, U.S. forces may choose to intentionally limit the use of networks that inevitably emit radio waves, to avoid enemy detection.[89] Moreover, three approaches to command are raised: "command by direction," "command by planning," and "command by influence." The first two approaches, "command by direction" and "command by planning," aim to "eliminate uncertainty," while "command by influence," or mission command, seeks to "reduce the need for certainty" itself. Mission command is stated to be the "preferred approach."[90]

NDP 1 emphasizes commander's intent as a way to maintain overall coherence without continuous orders from commanders, enabling subordinate commanders to take initiative based on local conditions. This raises the central concept of mission command, with mention of "disciplined

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85 De Angelis and Garfield, "Give Commanders the Authority," pp. 19, 20.

86 Andrew Beeler, "Distributed Lethality Requires Distributing Authority: For This State-of-the Art Surface-Warfare Concept to Work, the U.S. Navy Must Recognize the Leadership Challenges It Poses," *Proceedings*, vol. 143, no. 1 (January 2017), pp. 55, 57.

87 Daniel Stefanus, "Embracing the Dark Battle: Electronic Warfare, Distributed Lethality, and the Future of Naval Warfighting," *Proceedings*, vol. 143, no. 4 (April 2017), p. 30.

88 Scott Swift, "Master the Art of Command and Control," *Proceedings*, vol. 144, no. 2 (February 2018), p. 31.

89 David H. Berger, Michael M. Gilday, and Karl L. Schultz, *NDP 1 Naval Warfare* (Washington, DC: DON, 2020), pp. 43, 44.

90 Ibid., p. 45.

initiative" by subordinate commanders.[91] NDP 1 lists the "DMO concept" in its glossary as the source of "disciplined initiative." This suggests a link between the adoption of mission command and the DMO concept in the Navy.[92]

As seen in this section, although the Navy has a tradition of decentralized C2, including Nelson's Touch and command by negation, recent years have seen a shift toward centralization. However, with deepening awareness that U.S. forces may need to operate under conditions of degraded C2 and communications in a potential armed conflict with China, the importance of mission command is now being recognized to support distributed operations in anticipated potential armed conflicts with China and the like.

4. "Unity of Effort" in Distributed Operations

(1) Dispersion of Forces and Concentration of Firepower

With regard to the Navy's DMO concept, as can be seen in the arguments emerging from Navy officials that distributed lethality requires distributing authority, the need for distributed operations is often discussed in connection with decentralized C2 for both the Navy and Air Force.[93]

However, it is essential to note that distributed operations often simultaneously include elements that typically require centralization. According to Rielage who was mentioned above, "most designs for disaggregated forces rely on centralized command to achieve coordinated effects," meaning that distributed operations do not necessarily lead to decentralized C2.[94] As outlined in the abovementioned "Navigation Plan 2022," the DMO concept itself is premised on connecting sensors, weapons, and decision-makers within a network. Dmitry Filipoff also points out that contrary to what the term "distributed" might suggest, the DMO concept is a "network-centric warfighting concept instead of a platform-centric concept."[95]

Underlying this is the distinctive structure of modern naval combat. In his paper on the relationship between future naval combat and mission command, Robert Rubel identifies three forms of naval combat: (1) "structured battle," (2) "melee," and (3) "sniping," and explains that any manner of fighting at sea will be a variation of one of these modes.[96] (1) "Structured battle" is premised on coordination among participating units to enable unified maneuvers, concentrated firepower, and mutual support.[97] In contrast, (2) "Melee" aims to "take advantage of an enemy's disarray and demoralization by engaging as many of his ships as possible so as to neutralize his fleet." Once a battle has turned into a melee, no further coordination among participating units is conducted.[98] (3) Sniping is a form of ambush warfare and shares with melee the characteristic of independent combat by each unit. However, unlike melee, it generally occurs in environments

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91 Ibid., pp. 46–47.

92 Ibid., p. 71.

93 Beeler, "Distributed Lethality Requires Distributing Authority," p. 54.

94 Rielage, "Act on Commander's Intent," pp. 32–37.

95 Dmitry Filipoff, "Fighting DMO, Pt. 1: Defining Distributed Maritime Operations and the Future of Naval Warfare," February 20, 2023, https://cimsec.org/fighting-dmo-pt-1-defining-distributed-maritime-operations-and-the-future-of-naval-warfare/.

96 Robert C. Rubel, "Mission Command in a Future Naval Combat Environment," *Naval War College Review*, vol. 71, no 2 (Spring 2018), p. 110.

97 Ibid., p. 111.

98 Ibid., pp. 111, 112.

where the enemy force is strong, making "structured battle" difficult. Thus, each unit operates in a dispersed manner from the outset.[99]

According to Rubel, "The battle-force network... is a prerequisite for effective missile combat," and "structured battle is the best mode to employ, with tight firing coordination among as many units as possible." Particularly in over-the-horizon anti-ship missile warfare, it becomes necessary to receive target data from distant sensors via a network and positively identify targets.[100] However, if an attack were conducted solely using the sensors installed on individual ships, it would prevent those ships from fully utilizing the range of their missiles, leading to potentially "wasting them against lower-priority targets."[101] Furthermore, in current missile combat, missiles fired from a single ship are likely to be absorbed by the defensive measures of enemy ships,[102] necessitating cooperative engagements from multiple platforms connected via a network and attacking from multiple axes. Based on this analysis, Rubel concluded that "in modern, dispersed-missile combat, the Nelsonian paradigm may not serve."[103] Similarly, Filipoff argued that the authority to fire anti-ship missiles should not be held by individual platform commanders but by higher-ranking commanders with superior situational awareness, as "there are few concepts that have as much potential to undermine massed fires than that of mission command."[104]

Another frequently cited advantage of mission command is that frontline commanders directly confronting the enemy have a better understanding of conditions on the battlefield than senior commanders in the rear. However, it is noted that this premise does not always apply to missile warfare. In his 2018 paper, Admiral Swift, then-commander of the Pacific Fleet, while generally supportive of decentralized C2, also highlighted situations where a higher commander, who has the grasp of the "holistic picture of the overall situation," may be able to "spot and exploit an enemy's weaknesses and appropriately redirect forces."[105] Rubel also pointed out, "Owing to the wide dispersal of autonomous or semiautonomous intelligence, surveillance, and reconnaissance (ISR) assets, it could be the case that a distant maritime operations center (MOC) has better situational awareness about local conditions than a unit or group commander, assuming the opposing forces are over the horizon from each other. Of course, the opposite also could be the case."[106] Such assessments are among the reasons why centralized command is necessary in missile warfare. Moreover, this tendency is likely to apply not only to the Navy and Air Force, but also to the Army and Marine Corps, both of which aim to acquire new long-range strike capabilities.[107]

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99 Ibid., p. 112.

100 Ibid., p. 114.

101 Ibid., p. 116.

102 John C. Schulte, "An Analysis of the Historical Effectiveness of Anti-Ship Cruise Missiles in Littoral Warfare" (master's thesis, Naval Postgraduate School, 1994), pp. 15, 16, 17, 18, https://calhoun.nps.edu/handle/10945/27962.

103 Rubel, "Mission Command," p. 116.

104 Dmitry Filipoff, "Fighting DMO, Pt. 10: Force Development Reform for Manifesting DMO," May 15, 2023, CIMSEC, https://cimsec.org/fighting-dmo-pt-10-force-development-reform-for-manifesting-dmo/.

105 Swift, "Master the Art of Command and Control," p. 31.

106 Rubel, "Mission Command," p. 115.

107 For example, *A Concept for Stand-in Forces* released by the Marine Corps in December 2021 assumes that the Marine Corps' long-range firepower will be integrated with sensors and weapons from other services through a network. See U.S. Marine Corps, *A Concept for Stand-in Forces* (Washington, DC, 2012), p. 14.

(2) Horizontal Coordination in Mission Command

As explained in this paper, the reason the U.S. military services look to mission command is their concern about potential armed conflict with China or Russia. In such a conflict, U.S. C2 is highly likely to be attacked and disrupted, and this might cause the dysfunction of the entire U.S. forces if they adopt a centralized C2 approach, where higher command directly controls the individual actions of subordinate units. However, if one examines the operational concepts and doctrines developed by the services, it becomes clear that the importance of coordinating the actions of multiple units involved toward a common purpose has in fact increased.

Traditionally, the arrangement of multiple units' actions in terms of time, space, and purpose has been incorporated into U.S. military doctrine as "synchronization."[108] Furthermore, the Joint Staff is now promoting Joint All-Domain Operations (JADO), which aim to integrate operations across land, sea, air, space, cyberspace, and the electromagnetic spectrum. The core concept here is "convergence," meaning the "synchronization and integration of kinetic and non-kinetic capabilities to create lethal and nonlethal effects."[109] Whether referred to as "synchronization" or "convergence" (the massing of firepower in missile warfare mentioned in the previous section is one example), integrating various capabilities in actual operations requires alignment of "disparate planning timelines and resource availability."[110]

In this context, it has been noted that there is a need to expand the concept of mission command, which has traditionally focused on the vertical relationship between commanders and subordinates, emphasizing disciplined initiative from the latter. In his 2017 paper "Mission Command 2.0," Anthony C. King argued that "mission command in the twentieth century" is individualistic, centered on the "limited devolution of authority relating to immediate tactical tasks" for frontline commanders. In this approach, subordinate commanders make independent decisions based on the higher commander's intent in accordance with their respective missions and situations, hence the term "individualistic." By contrast, what is essential in "mission command in the twenty-first century" is not so much the vertical relationship between superiors and subordinates but rather "ever-closer integration and interdependence of commanders" as well as "increasing interaction and synergy between commanders" involved in operations. King referred to this as "Mission Command 2.0," based on "collectivism with commanders united around common definitions and a shared consciousness."[111]

As in twentieth-century mission command, initiative by commanders remains essential in "Mission Command 2.0." However, it is not exercised within the vertical relationship between commanders and subordinate commanders, but rather through voluntary coordination among peer commanders who do not have command authority over one another. This voluntary coordination occurs even without specific orders from higher command or without continuous connectivity with higher command, based on commander's intent and shared awareness. In other words, "Mission

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[108] Robert Rose, "Preventing a Short Jump across a Wide Ditch: Fully Embracing Mission Command to Avoid a Multi-Domain Disaster," *Military Review*, vol. 100, no. 2 (March/April 2022), pp. 41, 43; and Joint Chiefs of Staff, *DOD Dictionary*, s.v. "synchronization."

[109] Department of the Air Force, *AFDP 3-99/SDP 3-99, Department of the Air Force Role in Joint All-Domain Operations* (Maxwell AFB, AL: LeMay Center, 2021), pp. 4, 15.

[110] Ibid., p. 15.

[111] Anthony C. King, "Mission Command 2.0: From an Individualist to a Collective Model," *Parameters*, vol. 47, no. 1 (Spring 2017), pp. 8, 11, 12.

Command 2.0" emphasizes what can be called a horizontal relationship among commanders.[112]

The Air Force doctrine also includes descriptions premised on horizontal coordination. AFDP 1-1: "Mission Command" explains the significance of "disciplined initiative," which is one of mission command's principles, not only as ensuring discretion for subordinate commanders but also as achieving the "high-level of *coordination* and *synchronization* required to employ airpower" (emphasis added). The "coordination and synchronization" mentioned here are voluntary, referring to maintaining unity of action among surviving subordinate units, operational centers, and BMC2 platforms by coordinating and synchronizing with each other, even in situations where specific orders from the AOC cannot be received due to attacks on or disruption of communications with the AOC. This unity of action is based on "a shared understanding of mission objectives, desired effects, overall commander's intent, and the broader operational and strategic context."[113]

This reflects that in modern air operations, regardless of who is conducting them or where they take place, coordination and synchronization of each platform's actions are essential. Considering the abovementioned characteristic of air operations that "aircraft do not act alone," at the tactical level of C2, each platform needs to know, at the very least, when and where it needs to be. In this regard, as Kamena points out, the ATO does not serve as a mission-type order, but conversely, mission-type orders cannot replace the ATO either. Furthermore, according to Frederick Coleman, given the scarcity of airpower, "An air expeditionary wing (AEW) commander in an ACE environment will likely not have sufficient assets under his or her command to effectively package airpower." Therefore, for effective tactical-level utilization of airpower, detailed coordination across all air forces, as traditionally done by the AOC, remains necessary.[114]

While Coleman emphasizes the need for detailed coordination required in air operations, he also advocates for transitioning from an approach of "localized, proprietary, on-premises data," where many functions are centralized in a physical facility like the AOC, to a "cloud-based environment." This shift would enable "air components to *collaborate* across echelons" (emphasis added). What is crucial here, as demonstrated by Ukraine's response in its conflict with Russia, is the idea that even if communications are attacked or disrupted, if measures are taken to ensure resilience, "the likelihood of actually having zero communications in today's environment is very small." According to Coleman, even in the event of temporary disruption, operations would proceed in line with the "most current version of the plan," and once communication is restored, the plan would then be updated.[115]

Coleman's perspective is rooted in the idea that in today's armed conflicts, the risk posed by enemy attacks and disruptions to C2 and communications is significantly heightened when you put "all eggs in one basket," meaning when all planning, coordination, and synchronization functions are concentrated within the AOC. This concentration creates substantial vulnerabilities, but dispersing these functions can reduce this risk to a manageable level. Furthermore, Coleman points out that to enable the cooperation envisioned under distributed control, "building the network and software that can support it" is necessary, and that the Advanced Battle Management System

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112 Ibid., p. 19.
113 U.S. Air Force, *AFDP 1-1 Mission Command* (Maxwell AFB, AL: LeMay Center, 2023), p. 9.
114 Coleman, "Limited Utility," p. 5.
115 Ibid.

(ABMS), currently under development by the Department of the Air Force, serves this purpose.[116] It is indeed true that the Air Force is advancing ABMS, or more recently, the Department of the Air Force Battle Network, as "cloud-based C2" aimed at facilitating cooperative operations.[117]

It has also been noted that the Navy's DMO concept is premised on such voluntary coordination. Tom Clarity points out that conducting operations under the advanced ISR capabilities of China and Russia requires both dispersal of forces and the mass of firepower from dispersed ships. However, centralizing command at the operational level for such coordination would be difficult, so the DMO concept anticipates voluntary coordination among the ships. According to Clarity, while ships conducting DMO are initially dispersed, when communication temporarily becomes possible, they either receive target information or detect the enemy using their own sensors. Each ship then approaches the target, with the one closest to the target setting the attack axis and timing to initiate the attack. Following this lead, nearby ships launch subsequent attacks, while more distant vessels provide cover or defense for the attacking ships. For such an attack to succeed, voluntary coordination among the ships involved is a precondition. Clarity explains, "Establishing ad hoc combat formations will require a remarkable amount of trust and cross-platform understanding."[118]

Conclusion: Decentralization and Unity of Effort in Mission Command

In recent years, the Air Force and Navy in the U.S. military have newly adopted mission command, which had long been adopted in the doctrine of the Marine Corps and the Army. At the same time as introducing mission command, the Air Force changed its "fundamental organizing principle" from CCDE to CC-DC-DE centered on distributed control to embody mission command. This change was prompted by the recognition that in the case of a potential armed conflict with China or Russia, centralizing C2 of air operations at the theater-level AOC would increase vulnerability, making it necessary to distribute control to lower-level operations centers and BMC2 platforms. In addition, the push for distributed operations as part of ACE has further encouraged the adoption of mission command. Similarly, the Navy has recognized the importance of mission command, given the need to anticipate interference with C2 and communications in a potential armed conflict with China, as well as its advancement of distributed operations under the DMO concept.

In the Navy and as well as in the Air Force, distributed operations have been discussed with the premise of decentralized C2. However, as seen in Section 4, for long-range firepower to be effective, information sharing among sensors, weapons, and decision-makers is essential for target selection, allocation, and guidance, which favors centralization over decentralization. Furthermore, examining the operational concepts and doctrines under development now within the U.S. military, the importance of aligning the actions of multiple related units for a shared objective has grown even more prominent. Under mission command, while higher headquarters like the AOC may not control each unit's actions centrally, it remains necessary to coordinate the actions

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[116] Frederick Coleman, "Distributed Control: Getting It Right," *The Mitchell Forum*, no. 50 (January 2023), p. 3.

[117] Chris Gordon, "Operational Imperative No. 2: Operationally Focused ABMS," *Air & Space Forces Magazine*, vol. 106, no. 8 (August 2023), p. 33; and Secretary of the Air Force Public Affairs, "ABMS Moves Forward on Cloud-based C2," January 9, 2023, U.S. Air Force, https://www.af.mil/News/Article-Display/Article/3262645/abms-moves-forward-on-cloud-based-c2/.

[118] Tom Clarity, "Distribute DMO to Tactical Commanders," *Proceedings*, vol. 149, no. 1 (January 2023), pp. 27, 28.

of units. Traditional discussions of mission command have focused on the vertical relationship of delegation from higher commanders to subordinate commanders and the disciplined initiative expected of the latter. Discussions on mission command and distributed operations within the Air Force and the Navy include horizontal coordination, which involves voluntarily adjusting and synchronizing based on each commander's intent to achieve unity of action, and it is thus essential to broaden understanding of mission command. Furthermore, as mission command, by definition, calls for delegation and unity of efforts at the same time, the question of striking a balance to achieve overall coordination under mission command can be viewed simply as a matter focusing on either of the two sides of mission command.

Finally, I would like to address issues that were not discussed in this paper, but merit further investigation. This paper is focused on mission command as applied to combat situations. However, the U.S. military currently places high importance on "competition," where the United States competes with China and Russia to seek advantageous conditions without escalating to armed conflict. In such situations, operational objectives take on a more political nature, making coordination with other tools such as diplomacy increasingly crucial, which may push C2 of units toward centralization.[119] In addition, in discussions on civil-military relations in the United States, there is an argument that "there is no field of military action that might not be touched by political considerations," and that it is entirely possible and justified for political leaders to involve themselves in the finer details of military operations to accomplish their policies.[120] This paper could not address how such arguments relate to mission command, and will leave them to be considered going forward.

(National Institute for Defense Studies)

[119] George J. David, "Executing RXR: A MCISRE for Intelligence Operations," *Marine Corps Gazette*, vol. 107, no. 10 (October 2023), pp. 18, 20. Vego also points out that the centralization of C2 tends to increase the more that operational objectives are political or when errors by subordinates cannot be tolerated, such as during crises that carry the risk of escalating into armed conflict with adversary nations. See Milan N. Vego, "Operational Command and Control in the Information Age," *Joint Force Quarterly*, no. 35 (October 2004), p. 110.

[120] Eliot A. Cohen, *Supreme Command: Soldiers, Statesmen, and Leadership in Wartime* (New York: Simon & Schuster, 2003), p. 8.