Back to the Drawing Board: Redesigning Leaders for Joint Task Force (JTF) Command in 2035

A Monograph

by

MAJ Nathan R. Catching
US Army

School of Advanced Military Studies
US Army Command and General Staff College
Fort Leavenworth, KS

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The Army must prioritize Joint Task Force (JTF) commander development as the focus for leader development, not only to succeed in multi-domain operations (MDO), but also across a host of potential future contingencies. Neither the Army nor the Joint force have leadership attributes for specific echelons of command, which is the crucial starting point. All commanders must anticipate, adapt, respond, and serve; these are universal competencies. Seven attributes are derived from considering how JTF commanders achieve these competencies in future operational environment 2035: systems thinking, strategic thinking and communications, human-AI competence, emotional intelligence, empathy, psychological durability, and inquisitiveness. The Army must begin developing these attributes and align them to talent management over the course of each officer's career to prepare the JTF commanders of tomorrow.

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_____//signed/06APR21/CBS//_____, Monograph Director
Craig B. Smith, PhD

_____//signed/07APR21/JMA//_____, Seminar Leader
Jason M. Alvis, COL

//signed 23 APR 21/ BAP, Director, School of Advanced Military Studies
Brian A. Payne, COL

Accepted this _20th_ day of _May____ 2021 by:

_____, Assistant Dean of Academics for Degree Programs
Dale F. Spurlin, PhD and Research, CGSC

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the US Army Command and General Staff College or any other government agency. (References to this study should include the foregoing statement.)

Abstract

Back to the Drawing Board: Redesigning Leaders for Joint Task Force (JTF) Command in 2035, by MAJ Nathan R. Catching, 59 pages.

The Army must prioritize Joint Task Force (JTF) commander development as the focus for leader development, not only to succeed in multi-domain operations (MDO), but also across a host of potential future contingencies. Neither the Army nor the Joint force have leadership attributes for specific echelons of command, which is the crucial starting point. All commanders must anticipate, adapt, respond, and serve; these are universal competencies. Seven attributes are derived from considering how JTF commanders achieve these competencies in future operational environment 2035: systems thinking, strategic thinking and communications, human-AI competence, emotional intelligence, empathy, psychological durability, and inquisitiveness. The Army must begin developing these attributes and align them to talent management over the course of each officer's career to prepare the JTF commanders of tomorrow.

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I also appreciate the work that MAJ Matt LoPresti (the Maximizing Human Potential Sprint Team concept development lead) and his team are putting in to building better soldiers. The considerable time and information that Matt provided was highly beneficial to my research, to include his connecting me with the team and providing feedback and edits in this monograph for MHP's role within Futures Command. Mr. Christopher Stolz and CH (COL) Steven Cantrell also provided insight about the future operational environment, where Mr. Stolz's brief had first given me the idea of detailed command as a foil to mission command. CH Cantrell also provided feedback on my first draft and insight on the moral/ethical implications.

I also want to thank Dr. Jay Goodwin (the Army Research Institute lead for MHP's LOE 3), who took time to discuss the current direction that Army Talent Management is going, which helped

with the implementation portion of my research, and for giving me the idea that the JTF structure of the future (and the requisite rank to be a JTF commander) might be markedly different as the environment evolves.

I also want to thank fellow students and faculty at SAMS, who broadened my aperture with excellent discussion. Mr. Brian Burke (a fellow SAMS student from the Defense Intelligence Agency) helped me to consider the low and medium intensity forms of conflict along the conflict continuum. He and Major Matthew Sabatino (USAF; also a fellow SAMS student) offered great critiques on my introductory Belarus scenario as well. Major Sabatino and US Army MAJ Phil Henke also helped me to notice how AirLand Battle doctrine was replete with leadership focuses while FM 3-0 has much less. Major Sabatino also helped me to come up with the title. Additionally, Dr. Jacob Stoil provided a view on the ramifications of conscription and the effects on early promotion, inexperienced commanders at higher echelons, and the need to train conscripted forces.

Last, but certainly not least, I want to thank Dr. Jeff Reilly, the head of the Air Command and Staff College Joint All Domain Strategist (formerly the Multi-Domain Operational Strategist) concentration, and the fellow instructors in that program. They provided excellent education concerning operational and strategic design, multi-domain operations, and the human domain over the course of last year (when I was in the program). Dr. Reilly, in particular, initially pointed me in the direction of anticipate, adapt, and respond and gave great mentorship to prepare me for SAMS, planning, and command.

Abbreviations

ADP	Army Doctrine Publication
AFC	Army Futures Command
AI	Artificial Intelligence
ARI	Army Research Institute
ATMTF	Army Talent Management Task Force
ATP	Army Techniques Publication
C2	Command and Control
CJCS	Chairman of the Joint Chiefs of Staff
COP	Common Operational Picture
CSA	Chief of Staff of the Army
DLA	Desired Leader Attribute
FM	Field Manual
FOE	Future Operational Environment
JIIM	Joint, International, Intergovernmental, and Multinational
JLA	Joint Learning Area
JP	Joint Publication
JPME	Joint Professional Military Education
JTF	Joint Task Force
LOE	Line of Effort
LSCO	Large-Scale Combat Operations
MCTP	Mission Command Training Program
MDO	Multi-Domain Operations
MHP	Maximizing Human Potential
NATO	North Atlantic Treaty Organization
OE	Operational Environment

OPMEP	Officer Professional Military Education Policy
PAM	Pamphlet
PME	Professional Military Education
SAE	Special Area of Emphasis
SAMS	School of Advanced Military Studies
TRADOC	Training and Doctrine Command
US	United States

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Introduction

No one should have been surprised by Russia's attack into Belarus in 2036. It was preempted by years of rhetoric, social media campaigns, election meddling, and cyber-attacks to undermine municipal government authority. Despite the current Belorussian government's pro-Western leanings, too many pro-Russian political elites in both Minsk and Moscow were against it.[1] *When the Russians finally attacked, large swaths of the populace had seemingly invited them in as peacekeepers, or at least that was the word on social media.*[2] *The attack originated with widescale distributed denial of services as the Russians hacked into electric grids and city water supplies, enabling the supposed humanitarian mission that followed with T-14 Armata tanks and thermobaric missile launches against Belorussian military bases.*[3]

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[1] Benno Zogg, "From Belarus With Love: The Limits of Lukashenko's Dalliance With the West," *War on the Rocks*, April 3, 2019, accessed April 25, 2021, https://warontherocks.com/2019/04/from-belarus-with-love-the-limits-of-lukashenkos-dalliance-with-the-west/. Although this fictional scenario was created by the author, it is based on ideas from the sources in footnotes 1-6. The Zogg article, in particular, denotes the tenuous position of Belarus, straddling both Russian and US-European interests.

[2] Keir Giles, James Sherr, and Anthony Seaboyer, *Russian Reflexive Control* (Kingston, Ontario, Canada: Royal Military College of Canada, 2018), 4, 6, https://www.researchgate.net/publication/328562833_Russian_Reflexive_Control; Megan Kell, "An Approachable Look at the Human Domain and Why We Should Care," *Over The Horizon: Multi-Domain Operations and Strategy*, June 17, 2019, accessed April 25, 2021, https://othjournal.com/2019/06/17/an-approachable-look-at-the-human-domain-and-why-we-should-care/; Jeffrey Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS)," *Over The Horizon: Multi-Domain Operations and Strategy*, November 8, 2018, accessed April 25, 2021, https://othjournal.com/2018/11/08/oth-mdos-reilly/. Giles, Sherr, and Seaboyer introduce Russian 'reflexive control' theory—the Russian Federation's preferred mode of warfare, which includes various forms of military deception. Kell and Reilly both add to this via their respective discussions on the human domain, which includes information warfare.

[3] Valery Gerasimov, "The Development of Military Strategy under Contemporary Conditions. Tasks for Military Science," trans. Harold Orenstein and Timothy Thomas, online exclusive, *Military Review* (November 2019): 1-3, https://www.armyupress.army.mil/Portals/7/Army-Press-Online-Journal/documents/2019/Orenstein-Thomas.pdf; Amos C. Fox, "Looking Toward the Future: the U.S. Cavalry's Role in Multi-Domain Battle," *Armor: Mounted Maneuver Journal* 128, no. 1 (Winter 2017): 29, 31, https://www.benning.army.mil/Armor/eARMOR/content/issues/2017/Winter/ARMOR_Winter_2017_edition.pdf; Ariel Cohen and Robert E. Hamilton, "The Russian Military and the Georgia War: Lessons and Implications," (monograph, Strategic Studies Institute, US Army War College, Carlisle, PA, 2011), 45, https://www.jstor.org/stable/pdf/resrep11808.pdf?refreqid=excelsior%3Ab778c6db3821828c719d460b3e9ff75b; Michael Connell and Sarah Vogler, *Russia's Approach to Cyber Warfare* (Arlington, VA: Center for Naval Analyses (CNA), 2016), 9, 12, https://apps.dtic.mil/sti/pdfs/AD1032208.pdf. Gerasimov, the Chief of the Russian General Staff, noted in this address to the Academy of Military Science that "Military force is employed when nonmilitary methods are unsuccessful in achieving the assigned goals" (p. 3). Fox

Within the first week, tanks were slinging high explosive rounds at one another along the eastern border while airborne infantry and special purpose forces turned the mountainous suburbs around Minsk into pandemonium. Russia's premier artificial intelligence (AI) algorithms gave operational commanders multiple potential courses of action to choose from, with probabilities of success and risk tolerances, after their staffs had merely entered in the terrain and weather data. Four-winged, autonomous quadcopter battalions battled one another for dominance of the skies above major cities like scenes from Alfred Hitchcock's The Birds.[4] *Russia was already attempting to sue for peace by the time the North Atlantic Treaty Organization (NATO) had even prepared its crisis action Joint Task Force (JTF) to deploy.*[5]

The following week, some four thousand miles to the east, China decided this was the

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discusses Russian long-range fires and thermobaric missiles. Both the Cohen and Hamilton monograph and the Connell and Vogler CNA study provide information regarding distributed denial of service attacks against Estonia (2007) and Georgia (2008), with clear parallels to this futuristic Belarus scenario.

[4] Paul Scharre, *Army of None: Autonomous Weapons and the Future of War* (New York: W.W. Norton & Company, 2018), 12-13; M. L. Cummings, "Artificial Intelligence and the Future of Warfare" (research paper, Chatham House, The Royal Institute of International Affairs, London, UK, 2017), 7-8, https://www.chathamhouse.org/sites/default/files/publications/research/2017-01-26-artificial-intelligence-future-warfare-cummings.pdf; Nikolai Markotkin and Elena Chernenko, "Developing Artificial Intelligence in Russia: Objectives and Reality," *Carnegie Moscow Center*, May 8, 2020, accessed April 25, 2021, https://carnegie.ru/commentary/82422; Margarita Konaev and Samuel Bendett, "Russian AI-Enabled Combat: Coming to a City Near You?" *War on the Rocks*, July 31, 2019, accessed April 25, 2021, https://warontherocks.com/2019/07/russian-ai-enabled-combat-coming-to-a-city-near-you/; *The Birds,* directed by Alfred Hitchcock (Alfred J. Hitchcock Productions, 1963), https://www.imdb.com/title/tt0056869/. Scharre discusses current US experiments with drone swarms fighting one another, connoting Russian variants of this (and greater technology) might one day be possible. Cummings adds to the AI discussion, noting how algorithms affect autonomous targeting, which in theory could also affect the artificial planning tools described in this Belarus scenario. Markotkin and Chernenko discuss Russian prospective advances in artificial intelligence, stressing that Russia is not a global leader in this technology like the US or China, but that it does have certain niches where it can succeed in the future. Konaev and Bendett note Russia's limited AI budget, their propensity to fight in urban settings, their use of unmanned platforms, and how difficult predicting future AI trends will be because of currently "immature" technology. Konaev and Bendett also discuss how the "Russian military today views AI as an enabler in its automated control and decision-support systems that enables rapid analysis of diverse data in multiple domains. Soon, Defense Ministry experts hope to develop AI capable of operations approximating human brain function." The comparison to the Alfred Hitchcock movie is in reference to his 1963 film, *The Birds.*

[5] Giles, Sherr, and Seaboyer, 17; US Department of Defense, Joint Staff, Joint Publication (JP) 3-33: *Joint Task Force Headquarters* (Washington, DC: Government Publishing Office, 31 January 2018), I-8 through I-9; US Department of the Army, Army Techniques Publication (ATP) 3-92, *Corps Operations* (Washington, DC: Government Publishing Office, 2016), 3-3, 3-17, 3-18.

opportune time to aggressively pursue its claims in Taiwan and the South China Sea. The United States (US) and its allies now faced the realities of executing multi-domain operations with limited resources. Suddenly, the counter-Russian JTF preparing to enter Belarus was now third in priority, as the US shifted many of its preplanned air and space assets to support Indo-Pacific Command. The NATO JTF commander was in a predicament. Even if military forces could oust the Russians, the JTF might not be prepared to resist imbedded pro-Russian segments of the populace and a pervasive Russian narrative that had taken root in US and European politics, stifling domestic support before the upcoming elections. The commander would have to contend with a fast-paced, AI-enhanced tempo, Russia's adjacent air defense and surface missile network, and the threat of nuclear weapons. JTF command in the 2030s will be no easy task. [6]

The Army must prioritize Joint Task Force (JTF) command as its leadership development focus through 2035, or risk being unprepared for scenarios like that of beleaguered Belarus. The JTF is already the most malleable command and control (C2) node in the Joint force, easily augmented to a host of contingencies while offering a range of capabilities.[7] The Army Modernization Strategy is paving the transition toward a new operational concept called Multi-Domain Operations (MDO) by 2035, which will rely heavily on JTFs.[8]

The MDO concept, encapsulated by Training and Doctrine Command Pamphlet

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[6] Jeffrey Reilly, "Southeast Asia Conflict 2030 Blue Scenario Backstory" (unpublished document by the Multi Domain Operational Strategist concentration at the Air Command and Staff College, Maxwell Air Force Base, AL), 7-8; Jeffrey Reilly, "Planning Exercise: NATO Eastern Flank" (slide presentation (unpublished) by the Multi Domain Operational Strategist concentration at the Air Command and Staff College, Maxwell Air Force Base, AL: March 3, 2020), 19-24; US Department of Defense, Indo-Pacific Strategy Report: *Preparedness, Partnerships, and Promoting a Networked Region* (Washington, DC: Government Publishing Office, 2019), 8, 31, 43, https://media.defense.gov/2019/Jul/01/2002152311/-1/-1/1/DEPARTMENT-OF-DEFENSE-INDO-PACIFIC-STRATEGY-REPORT-2019.PDF. Dr. Jeffrey Reilly, the director of the Multi Domain Operational Strategist program at the Air Command and Staff College, used several exercises in his curriculum, including a Russian Baltic Scenario and a South China Sea scenario. Their respective roads to war inspired much of this Belarus scenario and the idea of a potential multi-theater war. The Indo-Pacific Strategy Report reinforces these concerns about China.

[7] US Joint Staff, JP 3-33 (2018), I-1 through I-5.

[8] US Department of the Army, *Army Modernization Strategy: Investing in the Future* (Washington, DC: Government Publishing Office, 2019), 1, 10-11, https://www.army.mil/e2/downloads/rv7/2019_army_modernization_strategy_final.pdf.

(TRADOC PAM) 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*, describes how the Army plans to integrate with the Joint force to enable "convergence."[9] This term implies a larger scale version of combined arms maneuver, involving synchronous "effect[s] greater than the sum of the individual parts" from across the five doctrinal domains (land, maritime, air, space, and cyber).[10] Future multi-domain formations (by nature, JTFs) are supposed to achieve convergence, however, the Army has not yet designed a plan to develop leaders who can provide this level of C2. TRADOC PAM 525-3-1 recognizes the deficiency, and Army Futures Command (AFC)—the leader in Army modernization—is starting to address it, but the problem is far from resolved.[11]

Commanders at all echelons must anticipate, adapt, and respond to future challenges, while serving the nation and the people in their formations.[12] Seven qualities are derived from considering how JTF commanders specifically achieve these competencies (anticipate, adapt, respond, and serve) in future operational environment (FOE) 2035. These crucial JTF commander attributes are systems thinking, strategic thinking and communications, human-AI competence, emotional intelligence, empathy, psychological durability, and inquisitiveness. While these

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[9] US Army Training and Doctrine Command, TRADOC Pamphlet (PAM) 525-3-1, *The U.S. Army in Multi-Domain Operations, 2028* (Fort Eustis, VA: Government Publishing Office, 2018), 20.

[10] Ibid., 20, GL-4. The quotation referencing convergence is from p. 20, while the five domains are listed out under the definition of "domain" in the glossary (p. GL-4).

[11] US Army, *Army Modernization Strategy*, 1, 10-11; US Army, TRADOC PAM 525-3-1, x, xii, 17-21; "About AFC," US Army Futures Command (AFC), Army.mil website, accessed March 31, 2021, https://www.army.mil/futures#org-about; US Army Futures Command (AFC), "Maximizing Human Potential for Multi-Domain Operations (MHP for MDO) Sprint Team Follow-Up Brief" (slide presentation (unpublished) by Army Futures Command (AFC), Fort Eustis, VA: AFC, September 17, 2020), 2-3; US Army Futures Command (AFC), "Maximizing Human Potential for Multi-Domain Operations" (unpublished White Paper Draft, Fort Eustis, VA: AFC, 2020), 1-2.

[12] Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS)," abstract; Charles Welty, "ACSC's MDOS: An inside look into one of the DOD's most innovative courses," Maxwell Air Force Base (news), April 13, 2018, accessed April 25, 2021, https://www.aetc.af.mil/News/Article-Display/Article/1493232/acscs-mdos-an-inside-look-into-one-of-the-dods-most-innovative-courses/. Reilly coined the phrase "anticipate, adapt, and respond" as an objective within his MDOS program at the Air Command and Staff College. This paper combines these three overarching leadership competencies with service, which will be discussed at greater length later.

attributes are conducive to MDO, they are not bound by it or any Army concept, as the future is too unpredictable to risk restricting commanders to a single mode of warfare. The Army must begin developing these qualities in today's field grade officers as soon as possible, as some of these leaders will be the JTF commanders of 2035 and beyond, and this effort must align with talent management.

Problem Overview

The problem is that the Army lacks any tangible leader development goal, making it impossible to nest leadership with talent management. The Army People Strategy overviews the Army vision for talent management modernization. It prioritizes "readiness," which it correlates with putting "the right people, in the right place, at the right time" to execute MDO.[13] By extension, "the right people" also means the right *leaders*, per the strategy's second line of effort (LOE): "Develop Talent."[14] This LOE describes the importance of investing "in the development of Army leaders…to meet our MDO-capable force objectives by 2035," implying talent management is aligned with building future leaders for MDO.[15] It is not though. The preponderance of the strategy focuses on managing soldier talent in general, *not* developing leaders, and it offers no description of the leader talents that enable MDO. A breakdown of specific talents for each echelon of command along an officer's career timeline would be more helpful, yet this is lacking in the strategy.[16] But again, Army leadership doctrine fails to address this void.

Doctrine provides a helpful foundation but is too generic to effectively prepare JTF commanders. The Army's main leader development publication, Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession*, is holistic—applicable for all ranks, roles, and

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[13] US Department of the Army, *The Army People Strategy* (Washington, DC: Government Publishing Office, 2019), 2-3, https://www.army.mil/e2/downloads/rv7/the_army_people_strategy_2019_10_11_signed_final.pdf. The initial "readiness" connection to people is on p. 2, but the quotation (from p. 3) refers to readiness, modernization, and reform.

[14] Ibid., 2-3, 6. The "readiness" quotation refers to pp. 2-3; the "Develop Talent" quotation is from p. 6.

[15] Ibid., 7.

[16] US Army, *The Army People Strategy,* 2-3, 7; Bob O'Brien, "Talent Management Army Staff LPD" (slide presentation by the US Army Talent Management Task Force [ATMTF], Army G-1. Washington, DC: ATMTF, February 3, 2020), 5-6. Quotation about investing in leaders is from *The Army People Strategy*. O'Brien's slides offer a glance at the typical officer career timeline for year group 2018 officers (p. 5) and a definition of "talent" as "the unique intersection of knowledge, skills, behaviors, and preferences" (p. 6). The term "talent" is synonymous with "attribute" in this monograph.

responsibilities (including JTF command). It also uses a helpful definition of attributes and competencies (Figure 1), where attributes encompass what Army leaders must *be* and *know*, while everything a leader must *do* is a competency.[17] Neither this publication nor any other Army doctrine, however, lists attributes for specific commands or for leadership in Joint, International, Intergovernmental, and Multinational (JIIM) formations. Doctrine also links to the current operational environment (OE), limiting its value in considering *future* JTF commanders. Concepts (like MDO), on the other hand, fall in the realm of future warfare.[18]

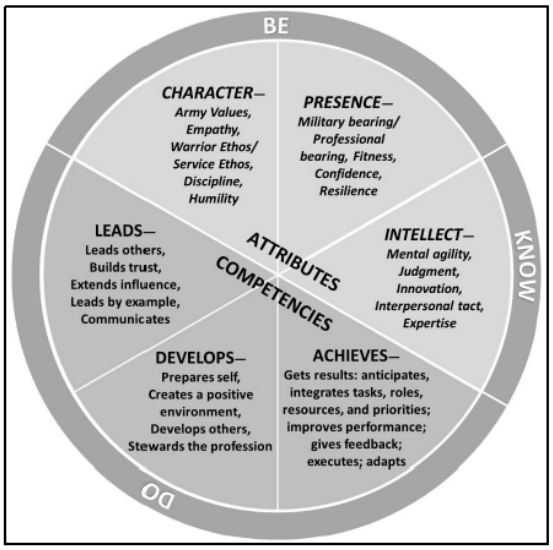

Figure 1. The Army Leadership Requirements Model. US Department of the Army, Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession* [Change 1] (Washington, DC: Government Publishing Office, 2019), 1-15 (Figure 1-3).

TRADOC PAM 525-3-1 (the MDO concept) opens the door to leader development, though its work is hardly complete. The publication's "Maximize [H]uman [P]otential" subsection discusses "selection, training, and education of the leaders" in multi-domain

[17] US Department of the Army, Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession* [Change 1] (Washington, DC: Government Publishing Office, 2019), 1-15.

[18] US Department of the Army, Army Doctrine Publication (ADP) 1-01, *Doctrine Primer* (Washington, DC: Government Publishing Office, 2019), 2-4 through 2-5; US Department of Defense, Joint Staff, Joint Publication (JP) 1: *Doctrine for the Armed Forces of the United States* [Change 1] (Washington, DC: Government Publishing Office, 2017), I-1.

formations (again, JTFs) and recognizes the need for an evolution in leadership.[19] It introduces several initial competencies and attributes, like teams that "thrive in ambiguity and chaos" and "resilience," with the vision of aligning these to talent management.[20] It stops short of providing a complete rollup of attributes or competencies for developing leaders though.

Army Futures Command (AFC) has picked up this slack, charging its Maximizing Human Potential (MHP) "sprint team" (essentially an operational planning team) to further explore these attributes and competencies.[21] The MHP team is focused on enhancing the "cognitive, physical, and emotional attributes" required for MDO, and has three LOEs to support this vision, one of which nests talent management to leader development.[22] AFC has also produced an initial list of MDO attributes (Figure 2), many of which directly apply to JTF command, however, this list is only a starting point.[23] For instance, it does not include anything about ethics or values, and is also unclear about which attributes solely apply to MDO and which are more universal in FOE 2035. The MHP team is conducting a rigorous analysis of the FOE and its implications for leader competencies to further refine these attributes, and should collude efforts with Joint leader development since MDO ultimately relies on Joint assets across the five domains.

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[19] US Army, TRADOC PAM 525-3-1, 19-20. Quotations are taken from p. 19.

[20] Ibid., 20.

[21] US AFC, "Maximizing Human Potential for Multi-Domain Operations," (unpublished White Paper Draft), 1-2, 4, 5; "Maximizing Human Potential for Multi-Domain Operations (MHP for MDO) Sprint Team Follow-Up Brief" (slide presentation (unpublished)), 3-4, 9. The "sprint team" quotations (capitalized in the original text) are listed in the unpublished White Paper Draft (on both pp. 4 and 5).

[22] US AFC, "Maximizing Human Potential for Multi-Domain Operations," (unpublished White Paper Draft), 1, 5, 8. Quotation from p. 1.

[23] Kyle Hatzinger, "Attributes of the MDO-Ready Force" (Slide presentation (unpublished) by Army Futures Command (AFC) Futures and Concepts Center (FCC), Fort Eustis, VA: AFC, 20 May 2019), 4.

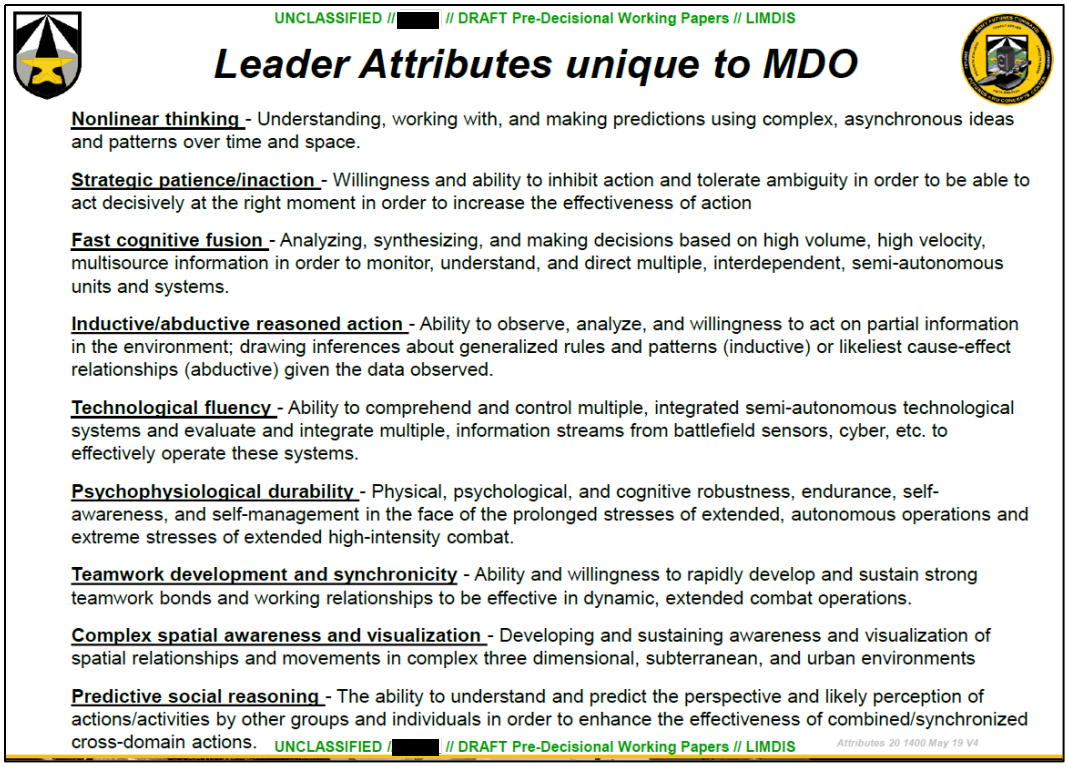

Figure 2. Leader Attributes Unique to Multi-Domain Operations (MDO). Kyle Hatzinger, "Attributes of the MDO-Ready Force" (slide presentation (unpublished) by Army Futures Command (AFC) Futures and Concepts Center (FCC), Fort Eustis, VA: AFC, 20 May 2019), 4.

The Chairman of the Joint Chiefs of Staff (CJCS) Instruction on Officer Professional Military Education Policy (OPMEP) is a Joint force approach to leader development, offering relevant competencies but limited attributes. The OPMEP governs Professional Military Education (PME) and its subcategory of Joint PME (or JPME). This document delineates several categories of competencies for all Joint force leaders, including six Joint learning areas (JLAs) and six desired leader attributes (DLAs), in addition to former CJCS GEN Joseph Dunford's complimentary seven special areas of emphasis (SAEs) for JPME (Table 1).[24] Although this list

[24] US Department of Defense, Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 1800.01F, *Officer Professional Military Education Policy* (Washington, DC: Government Publishing Office, 2020), 1, A-1 through A-3, A-5, A-A-1 through A-A-2, https://www.jcs.mil/Portals/36/Documents/Doctrine/education/cjcsi_1800_01f.pdf?ver=2020-05-15-102430-580; US Department of Defense, Chairman of the Joint Chiefs of Staff Memorandum for Chiefs of the Military Services, President, National Defense University, *Special Areas of Emphasis for Joint Professional Military Education in Academic Years 2020 and 2021* (Washington, DC: Government Publishing Office, 2019), cover memorandum, https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jpme_sae_2020_2021.pdf.

is more OE-focused than ADP 6-22, it is missing considerations like cyber. What the OPMEP refers to as desired leader *attributes* are also just *competencies*—what Joint leaders must *do*. The SAEs and JLAs cover some of what Joint leaders must *know*, but nothing about what they should *be*. The Army MHP sprint team should nest efforts with the J7 Directorate for Joint Force Development, since developing leaders to execute MDO and provide command and control (C2) in an ambiguous FOE is a Joint problem.[25]

Joint Learning Areas (JLAs; per OPMEP)	Desired Leader Attributes (DLAs; per OPMEP)	CJCS Special Areas of Emphasis (SAEs) for JPME
JLA 1: Strategic Thinking and Communication	DLA 1: Understand the security environment and contributions of all instruments of national power	SAE 1: The Return to Great Power Competition
JLA 2: The Profession of Arms	DLA 2: Respond to surprise and uncertainty	SAE 2: Globally Integrated Operations in the Information Environment
JLA 3: The Continuum of Competition, Conflict, and War	DLA 3: Recognize change and lead transitions	SAE 3: Strategic Deterrence in the 21st Century
JLA 4: The Security Environment	DLA 4: Operate on intent through trust, empowerment, and understanding (Mission Command)	SAE 4: Modern Electromagnetic Spectrum Battlefield
JLA 5: Strategy and Joint Planning.	DLA 5: Make ethical decisions based on shared values of the profession of arms	SAE 5: Space as a Warfighting Domain
JLA 6: Globally Integrated Operations.	DLA 6: Think critically and strategically in applying joint warfighting principles and concepts to joint operations	SAE 6: Ability to Write Clear and Concise Military Advice Recommendations

Source. Consolidated by author from US Department of Defense, Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 1800.01F, *Officer Professional Military Education Policy* (Washington, DC: Government Publishing Office, 2020), 1, A-2 through A-3, A-A-1 through A-A-2; US Department of Defense, Chairman of the Joint Chiefs of Staff Memorandum for Chiefs of the Military Services, President, National Defense University, *Special Areas of Emphasis for Joint Professional Military Education in Academic Years 2020 and 2021* (Washington, DC: Government Publishing Office, 2019), cover memorandum, https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jpme_sae_2020_2021.pdf.

The Army and Joint force must *design* future JTF commanders. It starts by determining how they must anticipate, adapt, respond, and serve in FOE 2035, and then deriving the attributes that enable them to do so. This is the launching point for adjusting talent management to foster the crucial attributes over a leader's career, with the eventual goal of JTF command.

[25] "J7 Directorate for Joint Force Development," US Department of Defense, Joint Chiefs of Staff [website], accessed March 23, 2021, available at https://www.jcs.mil/Directorates/J7-Joint-Force-Development/; Stephanie Huebner, "Learning to Think for Understanding: Introducing Systems Thinking into Professional Military Education," (master's monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2020), 1-2; US Army, TRADOC PAM 525-3-1, x, xii.

Anticipate, Adapt, Respond, and Serve

All commanders, must anticipate, adapt, respond, and serve. This construct has roots in theory, doctrine, and history, and offers an entry point into the discussion of JTF commander competencies, which helps in defining attributes. Dr. Jeffrey Reilly, a retired US Army colonel and currently the director for the Joint All Domain Strategist concentration at the Air Command and Staff College, initially lumped the first three overarching competencies (anticipate, adapt, and respond).[26] His framework lacked a moral element though, hence the fourth quality of service, which comes straight from the Army Value of selfless service. Taken together, these qualities encompass many of the OPMEP's DLAs, like responding to "surprise and uncertainty," utilizing mission command, making ethical decisions, and thinking critically and strategically.[27] The first of the four is anticipation.

Anticipate

Anticipation represents both foresight and preparation. It is the act of forecasting major challenges, decision points, and future actions, reactions, and counteractions. This enables the commander to exploit opportunities while minimizing risk; unit commanders at all levels do it prior to deployments or any upcoming mission.[28] Joint Publication (JP) 5-0, *Joint Planning* lists it as one of the elements of operational design, noting that Joint force commanders "must consider what might happen and look for indicators."[29] The idea of "red teaming"—or setting up

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[26] "Joint All Domain Strategist," Air Command and Staff College, Air University (AU), January 18, 2021, https://www.airuniversity.af.edu/ACSC/Display/Article/1688379/multi-domain-operational-strategists-mdos/.

[27] US Department of Defense, *Officer Professional Military Education Policy*, 1, A-1 through A-3; US Army, ADP 6-22, 2-2, 2-4. The DLAs are on pp. A-2 through A-3 (quotation from part of a DLA on p. A-3).

[28] Jeffrey M. Reilly, *Operational Design: Distilling Clarity from Complexity for Decisive Action* (Maxwell Air Force Base, AL: Air University Press, 2012), 61, 80-81, https://apps.dtic.mil/dtic/tr/fulltext/u2/a604644.pdf; US Department of the Army, Field Manual (FM) 6-0, *Commander and Staff Organization and Operations* [Change 2] (Washington, DC: Government Publishing Office, 2016), 9-26, 9-33.

[29] US Department of Defense, Joint Staff, Joint Publication (JP) 5-0, *Joint Planning* (Washington,

"an independent group" from across the Joint functions to "compliment all staff problem-solving…by serving as a 'devil's advocate'" from the adversary perspective—can be a powerful tool of anticipation as well.[30]

Anticipation is not prediction. Prediction deals with specific events while anticipation is more focused on identifying trends and shocks in the operational environment. Consider the weather, where meteorologists might *predict* rain or snow in tomorrow's forecast but *anticipate* a colder than normal winter due to meteorological trends over time. Prediction is preferable but there is also a greater margin for error, as the OE is much more complex and *un*predictable than weather patterns. Shocks also skew predictions. Nassim Nicholas Taleb, a statistician and the author of *Antifragile: Things That Gain from Disorder*, refers to shocks as "Black Swans (capitalized)."[31] To him, these are "large-scale unpredictable and irregular events of massive consequence."[32] Some shocks are predictable while others are not, yet any shock can cause crises that necessitate JTF operations.[33] Reilly points out that "no one can predict with 100 percent accuracy what an adversary will do" because they "are complex, adaptive systems…always capable of doing the unexpected."[34]

Army Techniques Publication (ATP) 5-0.1, *Army Design Methodology* expands Reilly's

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DC: Government Publishing Office, 2020), III-75, IV-39 through IV-40. Quotation is from p. IV-40, but anticipation is listed as an element of operational design on p. III-75 (Figure III-23).

[30] US Joint Staff, JP 5-0 (2020), III-76 and J-1. The initial "red teaming" quotation (capitalized 'R' in the original publication) and "independent group" quotation are both from p. III-76; the quotation about "devil's advocate" is from the appendix (p. J-1).

[31] Nassim Nicholas Taleb, *Antifragile: Things That Gain from Disorder* (New York: Random House Trade Paperbacks, 2012), 6.

[32] Ibid.

[33] Jeffrey Reilly, "Strategic Design: Compiled," *Over the Horizon: Multi-Domain Operations and Strategy*, April 12, 2018, accessed April 25, 2021, https://othjournal.com/2018/04/12/strategic-design-compiled/; Taleb, 6; US Joint Staff, JP 3-33 (2018), I-8 through I-9; US Army, ATP 3-92, 3-3, 3-17, 3-18. Taleb's Black Swan events align closely with Reilly's discussion of shocks, and the two doctrinal publications discuss how the Joint force might employ JTFs to deal with crises.

[34] Reilly, *Operational Design*, 77, 80-81; Quotations are taken from *Operational Design.* The one about predicting with "100 percent accuracy" is from p. 80; the quotation about adversaries being "capable of doing the unexpected" is from p. 77.

definition of a system from just the adversary to the entire, complex OE. This systems outlook helps commanders frame the environment and anticipate change. ATP 5-0.1 notes that a system is made up of complex "interacting, interrelated, and interdependent components" so that a decision by any actor in that system—state or nonstate, friendly or enemy, civilian authorities and third-party media outlets—all impact the environment in unalterable ways, meaning the system constantly changes.[35] Framing the OE (or system) means the commander builds "conceptual models…to select, organize, interpret, and make sense of situations and problems."[36] The better commanders understand the dynamics of their OE, the more apt they will be at coming up an operational approach, which JP 5-0 defines as a "commander's description of the broad actions…to achieve an objective…or attain a military end state."[37] Recognizing that ill-structured problems across the OE are part of a larger *system* means commanders understand that affecting the adversary in one way might achieve either desired or unintended consequences elsewhere.[38]

Commanders must communicate these complexities of the OE to their subordinates, build an operational approach toward the desired future outcome, and drive the formation to achieve it, as Figure 3 illustrates. They anticipate decisive points—defined in JP 5-0 as "key terrain, key event[s], critical factor[s], or function[s] that, when acted upon…gain a marked advantage over an enemy"—and then backwards plan to sequence operations around them.[39] ATP 5-0.1 also notes the importance of continually assessing and *re*framing the ever-changing OE, driving

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[35] US Department of the Army, Army Techniques Publication (ATP) 5-0.1, *Army Design Methodology* (Washington, DC: Government Publishing Office, 2015), 1-7 through 1-8. Quotation from p. 1-7.

[36] Ibid., 1-8.

[37] US Joint Staff, JP 5-0 (2020), IV-14; US Army, ATP 5-0.1, 5-1 through 5-2. Quotation is from JP 5-0. The ATP also discusses the operational approach and cites a slightly earlier version of JP 5-0 (in defining it).

[38] Dietrich Dorner, *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations* (New York, NY: Metropolitan Books, 1996), 2-5, 13-15.

[39] US Joint Staff, JP 5-0 (2020), IV-32; US Army, ATP 5-0.1, 4-2, 5-1 through 5-3. Quotation is from JP 5-0. ATP 5-0.1 discusses framing the environment (p. 4-2), the operational approach (p. 5-1), and decisive points (pp. 5-2 through 5-3).

commanders to adjust their operational approach when necessary.[40] Anticipation limits surprise.

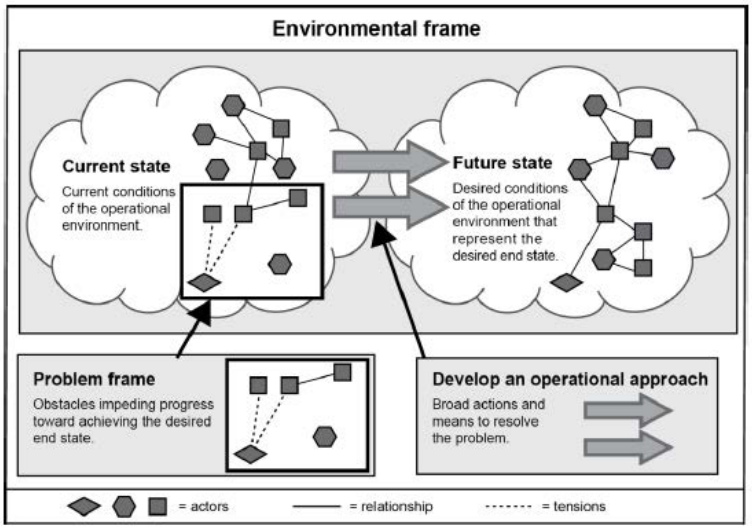

Figure 3. Operational Approach. US Department of the Army, Army Techniques Publication (ATP) 5-0.1, *Army Design Methodology* (Washington, DC: Government Publishing Office, 2015, 5-1 (Figure 5-1).

Zvi Lanir, a professor from the Center of Strategic Studies in Tel Aviv, Israel, notes two kinds of surprise: situational and fundamental. He uses the story of an adulterous wife to explain the difference. When her husband unexpectedly walks in, it comes as a *situational* surprise for the wife because she always knew that one day her husband might find out; she just did not know when or where it would happen. *Fundamental* surprise, contrarily, is what her unsuspecting husband experiences when his whole world—or paradigm—is shattered.[41] The German invasion of France in 1940 is a more operational example of how lapses in anticipation can lead to both types of surprise.

French forces in May 1940 experienced situational surprise by the German invasion. Their leadership had correctly *anticipated* a wide, sweeping German envelopment through

[40] US Army, ATP 5-0.1, 6-1 through 6-3; Robert R. Leonhard, *Fighting by Minutes: Time and The Art of War*, 2nd ed. (Self-published, 2017), 137. ATP 5-0.1 discusses assessing and reframing the OE (pp. 6-1 through 6-3). Leonhard describes decisive points as opportunities.

[41] Zvi Lanir, *Fundamental Surprises* (Ramat Aviv, Israel: Center for Strategic Studies, University of Tel Aviv, 1983), 25-26, https://www.theisrm.org/documents/Lanir%20(1984)%20Fundamental%20Surprises.pdf.

Belgium, and prepared accordingly by establishing the Maginot Line in the east to force the Germans into an Allied engagement area north of France. Germans did indeed envelop through Belgium, but their main effort unexpectedly infiltrated through the Ardennes toward Sedan, France. The intended target was not Paris as it had been in World War I, but the English Channel, which would impinge on British lines of communication and separate the Anglo-French Allies.[42] The French now had to contend with Germans in an unexpected location—a situational surprise. A deeper, fundamental surprise also awaited them.

Fundamental surprise is harder to overcome because it deals with a paradigm—the *fundamental* thinking of a commander or even the entire military.[43] In this case, French planning hinged on the erroneous assumption that mobile Allied forces could defend Belgium long enough to muster French reserves. This proved false because the French had become so committed to their own operational approach called "methodical battle"—which meant all operations were to be highly sequenced and controlled from the top-down—that they were blinded to any other style of warfare.[44] They failed to *anticipate* how the Germans could use decentralized C2 combined with tanks to significantly increase tempo, thereby shattering French notions of maneuver.[45]

Failures in French interwar anticipation preempted this fundamental surprise. One such failure was that the French had held back their own tank development, intentionally building *slow* tanks so as not to outrun the infantry (in methodical battle doctrine); although they changed

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[42] Eugenia C. Kiesling, "Resting Uncomfortably on Its Laurels: The Army of Interwar France," in *The Challenge of Change: Military Institutions and New Realities, 1918-1941*, eds. Harold R. Winton and David R. Mets (Lincoln: University of Nebraska Press, 2000), 5-7; Williamson Murray and Allan R. Millett, *A War to Be Won: Fighting the Second World War* (Cambridge, Massachusetts: Belknap Press, 2001), 54, 59; Gerhard P. Gross, *The Myth and Reality of German Warfare: Operational Thinking from Moltke the Elder to Heusinger*, ed. David T. Zabecki (Lexington, KY: University Press of Kentucky, 2016), 199-202; US Department of the Army, Field Manual (FM) 3-90, vol 1, *Offense and Defense* [Change 2] (Washington, DC: Government Publishing Office, 2013), 6-3, A-6. FM 3-90 (vol 1) describes how defenders use engagement areas.

[43] Lanir, 25-26, 29, 32-34.

[44] Kiesling, 4.

[45] Kiesling, 4-9, 12-13; Leonhard, 145.

course by 1936, tank production was slow.[46] Another example of failed anticipation was in the French leadership's refusal to learn from German operations in Poland in 1939, where the Germans had used tanks operating independent of the main body, exemplifying their emergent armored warfare. Even if the French had managed to reposition against the unexpected German threat at Sedan (situational surprise), they could not contend with the faster pace of modern warfare (fundamental surprise).[47] Good anticipation, alternatively, lessens surprise and enables commanders to adapt and respond.

Adapt and Respond

The better the anticipation, the less the commander will have to adapt and respond, though some level of adaption will always be necessary because of commander's inability to predict the coming OE. Adaptation in ADP 6-22 is "the ability to influence conditions and *respond* effectively to changing threats and situations with appropriate, flexible, and timely actions."[48] Although "respond" is part of this doctrinal definition, it is important to distinguish the two terms when considering future operations so that adapting is *to the environment* and response is *to a shock*—generally an event, a natural phenomenon, or an adversary action.[49]

Some shocks are predictable, while others fall into Taleb's Black Swan categorization; either way, they involve responses. A terrorist attack occurs on US soil, intelligence services identify the perpetrators as being connected with a certain government or region, and the

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[46] Kiesling, 15-16, 18, 20-21; Gross, 184-186, 193-196; Murray and Millett, 46-47, 60.

[47] Kiesling, 17, 20.

[48] US Army, ADP 6-22, 8-2. Emphasis added.

[49] In multiple one-on-one conversations with me and in-class instruction while at the Air Command and Staff College in Maxwell Air Force Base, AL between August 2019 and May 2020, Dr. Jeffrey Reilly confirmed his views on the distinction between anticipate, adapt, and respond; Reilly, *Operational Design*, 54, 55, 80, 124; US Army, ADP 6-22, 8-2. The "respond" quotation is taken from the doctrinal definition of adaptation in ADP 6-22 (p. 8-2), but unlike doctrine, Reilly distinguishes adaptation from response in that responding specifically focuses on emergent opportunities or reacting to enemy decisions. In addition to the conversations and instruction, he also indicates this view in the cited pages of his book, *Operational Design*.

President decides to take military action (not an unrealistic scenario). The CJCS recommends employing a JTF as a *response* option. Following this hypothetical to the tactical level, the JTF commander immediately has to *adapt* to the OE after deploying—for instance, perhaps there are unanticipated sandstorms, or the commander failed to understand how monsoon season would impact maneuver. The commander might also *respond* to enemy attempts to ambush friendly lines of communication.[50] Adapting and responding are closely interlinked, but this subtle distinction is helpful because adaption might occur gradually for years while shocks connote a more immediate response. Sensemaking is key to both.

ATP 5-0.1 notes that problem framing enables planners to "*make sense* of situations and problems by establishing context."[51] According to Dr. Karl Weick and fellow academics in a paper titled "Organizing and the Process of Sensemaking," it involves answering two main questions: what is happening? And what actions to take in response?[52] The situation might begin in ambiguity, perhaps with an unexpected event or enemy decision that challenges the commander's presumed common operational picture (COP). The commander now has to find new ways to categorize incoming information and test assumptions, reframing the COP as needed before deciding what to do—how to adapt or respond. This is an iterative process that enables the commander to "[r]espond to surprise and uncertainty," per the second DLA from the OPMEP.[53]

Sensemaking requires some level of operational art as well, and it takes a career for the commander to garner this art. "The commander," according to ATP 3-92, *Corps Operations*, "is

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[50] US Army, FM 6-0, 9-26, 9-33; US Joint Staff, JP 5-0 (2020), E-4 through E-6.

[51] US Army, ATP 5-0.1, 1-8.

[52] Karl E. Weick, Kathleen M. Sutcliffe, and David Obstfeld, "Organizing and the Process of Sensemaking," *Organization Science* 16, no. 4 (July-August 2005): 410-413, http://www.sietmanagement.fr/wp-content/uploads/2016/04/Weick2005.pdf

[53] US Army, ATP 5-0.1, pp. 6-1 through 6-3; US Department of Defense, CJCSI 1800.01F, *Officer Professional Military Education Policy*, A-3; Welty, "ACSC's MDOS;" Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS)," abstract. The "[r]espond to surprise and uncertainty" quotation comes from the *Officer Professional Military Education Policy*, though it is also mentioned as objective of ACSC's MDOS concentration by both Welty and Reilly (abstract).

the central figure in operational art…the commander's judgment and decisions guide the staff through" Operational Design, the Joint version of Army Design Methodology.[54] This *art* means knowing when to reframe versus trusting the accuracy of the current COP, when to depend on subordinates and dialogue versus one's own experience, and when to value data over intuition, which artificial intelligence (AI) will complicate in coming years.

History supports the need for both adaptation and response. In returning to the World War II example, the Germans in May 1940 forced French leadership at all levels of war—tactical, operational, and strategic—to adapt, or die trying. French forces never regained initiative as the Germans feinted to fix them in Belgium, where they had wrongly anticipated the main attack, while the main effort infiltrated through the Ardennes.[55] Although poor anticipation had led to the fundamental surprise, French unwillingness or inability to reframe their environment to the markedly faster tempo led to several inadequate responses. These included a horse cavalry attempt to repel German mechanized forces, the French leadership's failure to counterattack at all when German General Heinz Guderian first started his armored breakthrough west from Sedan, and what historians Williamson Murray and Allan Millett describe as "three panzer corps slic[ing] through French units desperately scrambling to shore up some kind of front."[56] Guderian reached the English Channel within ten days of the invasion, and the British—not the French—launched "the only major counterattack," though it eventually stalled.[57]

Disorganized C2 and Allied inability to regroup or sense-make meant they could not effectively adapt to this OE, which made for ineffective responses. The subsequent French plan

[54] US Army, ATP 3-92, 3-17 through 3-18; US Joint Staff, JP 5-0 (2020), IV-1. The quotation about operational art is from ATP 3-92 (p. 3-17).

[55] Murray and Millett, 69-75; Kiesling, 4, 18, 24; US Joint Staff, JP 1 (2017), I-7. JP 1 discusses the three levels of war.

[56] Murray and Millett, 70, 70-78. The quotation is from pp. 75-76.

[57] Ibid., 66, 76-77. The quotation is from p. 77. Guderian's ten days to the Channel is determined by the start of the war on 10 May (p. 66) and Guderian reaching the Channel on 19 May (p. 76).

was to fall back on what they knew from World War I and dig in, and although forces south of the Somme offered stiff resistance, France capitulated in six weeks. Reframing to effectively adapt and respond when the anticipated OE becomes the current OE is crucial; failure to do so can jeopardize the organization and even the nation.[58]

Serve

Service deals directly with a commander's motives. It counterbalances the anticipate, adapt, and respond competencies, which are oriented more on the mission than on people. Service adds the moral component, as preparing for the future is pointless if commanders cannot sustain enduring readiness by taking care of the people in their formations. This is epitomized by the "selfless service" Army Value, which ADP 6-22, *Army Leadership* defines as "doing what is right for the Nation, the Army, the organization, and subordinates."[59] Juxtaposing service with the other competencies forces the commander to balance competing priorities, as there is often an unspoken tension between operational objectives and soldier welfare.

In 2019, the Chief of Staff of the Army (CSA) GEN James McConnville prioritized "people first."[60] This idea nests with servant leadership theory, which promotes investing in subordinates' development to bring out their highest potential, regardless of the organization's objectives. In turn, subordinates are more likely to care about the organization and eventually become servant leaders too.[61] This theory overlaps with transformational leadership, which

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[58] Murray and Millett, 80-83.

[59] US Army, ADP 6-22, 2-4.

[60] Michelle Tan, "Putting People First: McConnville Looks to Revolutionize How Soldiers Serve," *Association of the United States Army*, 3 October 2019, accessed April 25, 2021, https://www.ausa.org/articles/putting-people-first-mcconville-looks-revolutionize-how-soldiers-serve#:~:text=To%20tackle%20those%20issues%2C%20McConville,%2Dstation%20(PCS)%20moves. The quotation is from the title of Tan's article (capitalized in the original text).

[61] Robert K. Greenleaf, *Servant Leadership: A Journey into the Nature of Legitimate Power & Greatness*, ed. Larry C. Spears (Mahwah, NJ: Paulist Press, 2002), 27; Dirk van Dierendonck, "Servant Leadership: A Review and Synthesis," *Journal of Management* 37, no. 4 (July 2011): 1248-1249, 1251, https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.863.7462&rep=rep1&type=pdf.

strongly undergirds doctrine. Transformational leadership theory is based around the "4I's" of idealized influence (subordinates want to be like their leader), inspirational motivation (giving the subordinates purpose), intellectual stimulation (inspiring critical and creative thinking), and individualized consideration (nurture subordinates' individual growth).[62] Its focus is on pulling people into a cohesive team to achieve organizational objectives.[63]

Part of the problem in implementing a people-centric strategy, however, is that current doctrine is rooted in transformational—not servant—leadership. Although ADP 6-22 professes a moral component via the seven Army Values and includes competencies like "develops," these are beneath the "leader's primary purpose," which "is to accomplish the mission."[64] In other words, leaders develop subordinates *in order to* accomplish operational objectives (transformational leadership); investing in them for purely altruistic reasons (servant leadership) is only a secondary benefit. GEN McConnville's prioritization of people first promotes servant leadership, which at first glance contests doctrine, yet both servant and transformational leadership have their place in future command.

The importance of service as an attribute is that it induces commanders at all echelons to decide for themselves how to harmonize mission accomplishment with soldier welfare—a

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[62] Bernard M. Bass et al., "Predicting Unit Performance by Assessing Transformational and Transactional Leadership," *Journal of Applied Psychology* 88, no. 2 (2003): 208, https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.500.1818&rep=rep1&type=pdf; D. D. Warrick, "The Urgent Need for Skilled Transformational Leaders: Integrating Transformational Leadership and Organization Development," *Journal of Leadership, Accountability and Ethics* 8, no. 5 (2011): 12, http://www.na-businesspress.com/JLAE/WarrickDD_Web8_5_.pdf; Mohammed Yasin Ghadi, Mario Fernando, and Peter Caputi, "Transformational leadership and work engagement: The mediating effect of meaning in work," *Leadership & Organization Development Journal* 34, no. 6 (2013): 535, https://www.researchgate.net/publication/263239943_Transformational_leadership_and_work_engagement_The_mediating_effect_of_meaning_in_work. Bass et al. and Warrick define the 4I's without referring to the construct as such. The quotation is from where Ghadi, Fernando, and Caputi (p. 535), who call it the "4I's."

[63] Bass et al., 209, 213, 215, 216; Warrick, 11-12, 15-16; Ghadi, Fernando, and Caputi, 545-546; Dirk van Dierendonck, 1235.

[64] US Army, ADP 6-22, 1-12, 1-20, 6-1, 7-1. Quotation about "develops" is from p. 6-1 (title of the chapter; first letter is capitalized in the original text); quotation about a "leader's primary purpose" is from p. 7-1.

transformational-servant leadership balance. Commanders must prioritize the mission, otherwise there is no reason for the Army to exist. ADP 6-22 projects that in LSCO, "leaders may send [s]oldiers and entire units into harm's way knowing they may not survive."[65] Servant leadership means training for war—nesting tough training with other leader responsibilities like counseling and mentorship that go beyond immediate organizational objectives and prepare subordinates for future service and leadership responsibilities, even beyond their years in the military. There are times when the mission takes priority, but long-term readiness also depends on *not* burning formations out in the interim, as a high operational tempo is prone to do. The CSA's guidance allows unit commanders to determine when subordinates have met the training objectives without the need for another field exercise, thus allowing soldiers time back with families. Service means prioritizing *both* the nation's welfare and care for soldiers and families.

In 1932, French Major Charles de Gaulle—the future World War II general—attempted to do this. He began publishing works that were contradictory to widely accepted views, advocating a combined-arms organization, yet military and senior civilians rejected it because it called for 100,000 soldiers. According to historian Eugenia Kiesling, "The government had no desire to hand the army a force so suitable for a coup d'état, and most…the upper echelons of the army knew better than to lobby for one."[66] The generals clearly understood the political culture of their time but had missed an opportunity to at least consider alternative formations in the event the Germans did not succumb to methodical battle. Another example is in the French high command's reluctance to experiment with doctrine.

In the interwar years, the French military had been unwilling to let subordinates challenge doctrine, which created a culture of inflexibility. Their logic was based in the idea of holding the Germans long enough to muster French reserves. Doctrine had to be simple enough to teach to

[65] US Army, ADP 6-22, 7-1, 8-1. Quotation from p. 8-1.

[66] Kiesling, 18-19. Quotation from p. 19.

conscripts in six months, rigid enough that reservists who did not drill often could retain it, and expansive enough that they could be plugged into any unit. The idea, according to Kiesling, was to use reservists like "interchangeable parts," where they "trained as visitors in one unit and fought as members of another."[67] While this decision was expedient, it failed to serve either the nation or the soldiers because it bred a culture of adherence and groupthink rather than adaptability.[68] Murray and Millett lament how "French soldiers…stood and fought. Over 123,000 died...But their sacrifice was in vain…The culprits were…generals who served between 1919 and 1940."[69] Service implies that these commanders should have been more willing to accept dissenting views, and to offer them to political leaders.

This holds true for the US military as well. When the Senate Armed Services Committee queried former CSA GEN Eric Shinseki in 2003 regarding Iraq, he advocated several hundred thousand troops, which put him at odds with Secretary of Defense Donald Rumsfeld. US Air Force Academy professor of political science Dr. Damon Coletta describes the culture, where Rumsfeld and his deputies had failed to rely on "advice from qualified officers" and instead "squandered military autonomy by…intimidating dissenters."[70] GEN Shinseki, however, determined that "core values…had left little choice but to take the hard road."[71] Although he was already planning to retire, this still demonstrated the courage to serve the nation and his people by testifying against popular opinion, as even the US Central Command commander disagreed with

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[67] Kiesling, 10.

[68] Ibid., 11-12.

[69] Murray and Millett, 81-83. Quotation about "French soldiers" is from p. 83.

[70] Damon Coletta, "Courage in the Service of Virtue: The Case of General Shinseki's Testimony before the Iraq War," *Armed Forces & Society* 34, no. 1 (October 2007): 112-113, 119. https://www.jstor.org/stable/pdf/48608807.pdf. Quotation from p. 112. Note that Coletta's argument is actually *against* GEN Shinseki as a hero. He states on p. 119 that "The path Shinseki chose before the senators and the media on the eve of war was honest and courageous in a narrow sense but not ultimately virtuous… Shinseki's civic courage did not serve virtue because it diminished military respect for civilian latitude."

[71] Ibid., 115.

his force projections. Coletta argues that the CSA should have been clearer about the limits of his authority, more precise in his projected request for forces, and conducted the session with Congress privately instead of drawing media attention. He believes politicians have the right to make the final decision and even to be wrong, but what about when their errors cost countless lives?[72] Even if history had proved Rumsfeld right and Shinseki wrong, he still had the *service obligation* to offer the best advice he could.

JTF Commander Competencies

Determining JTF commander competencies—or what they must *do* in FOE 2035—is the first step in deriving attributes. This means first conceptualizing JTF challenges in FOE 2035, and then determining how JTF commanders must anticipate, adapt, respond, and serve in this environment.

The JTF in Future Operational Environment (FOE) 2035

The term 'complex' would be an understatement in describing FOE 2035. Five aspects of this environment will affect JTF operations: large-scale combat operations (LSCO), the need for increased Jointness, the human domain, the growing role of AI, and the need to redefine command and control (C2).[73] Deterrence is at one end of what JP 3-0, *Joint Operations* refers to as the "conflict continuum," while LSCO is on the opposite end, with a "range of military operations" between them.[74] Figure 4 depicts a variant of this continuum tailored to JTF operations, where the left side illustrates what the National Security Strategy refers to as

[72] Coletta, 114, 116-119.

[73] Konaev and Bendett, "Russian AI-Enabled Combat." Konaev and Bendett discuss Russian "developments in military robotics, autonomy, machine learning, and artificial intelligence." For the sake of simplicity, this monograph lumps these technologies (both friendly and adversary) together under the umbrella term "artificial intelligence (AI)."

[74] US Department of Defense, Joint Staff, Joint Publication (JP) 3-0, *Joint Operations* [Change 1] (Washington, DC: Government Publishing Office, 2018), V-4.

"competition" (as opposed to conflict), while the right side portrays some of the worst possible forms of LSCO that the JTF might encounter.[75]

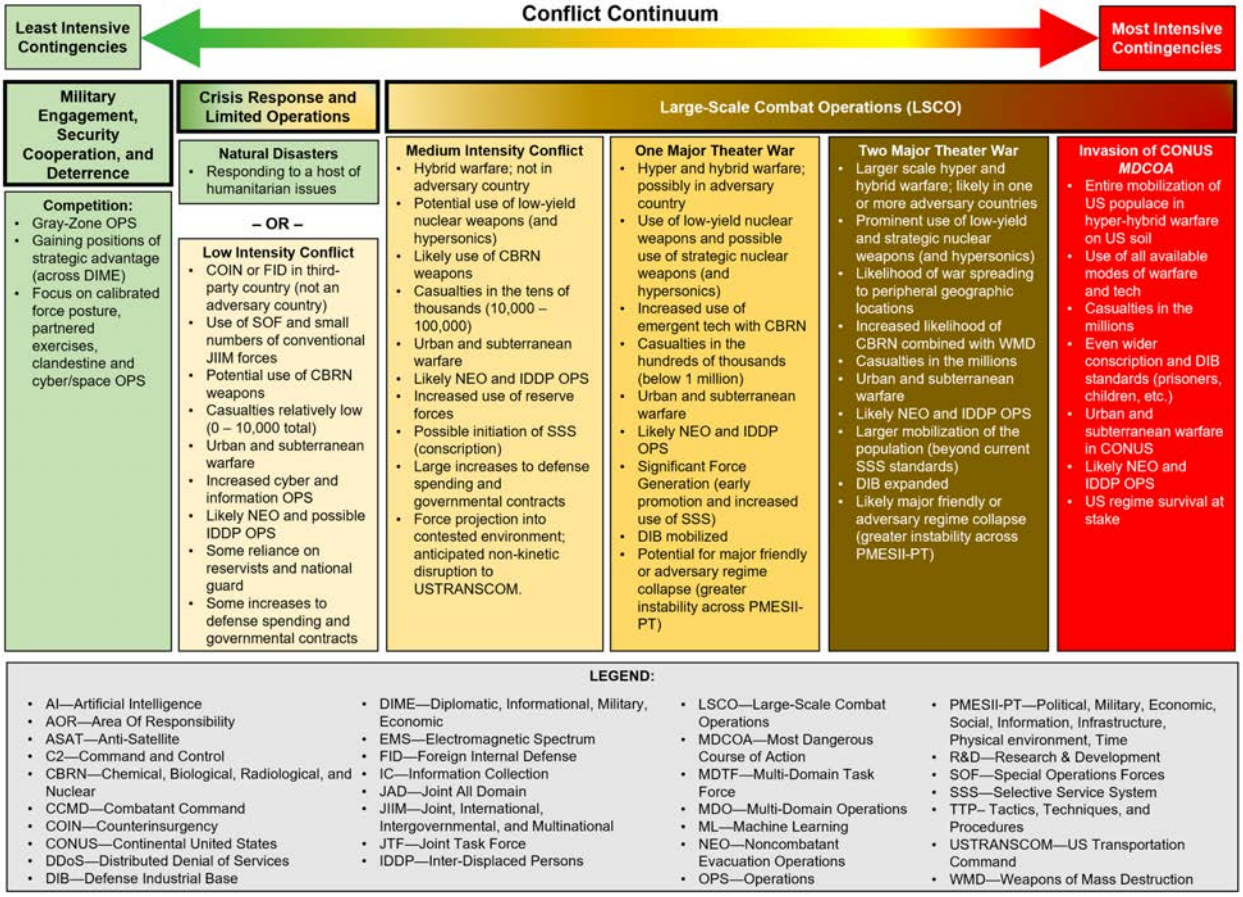

Figure 4. Future Operating Environment (FOE) 2035 Conflict Continuum. Created by the author.

RAND, which conducts various public policy studies, offers a non-doctrinal middle ground of medium intensity conflict. Figure 4, however, expands their definition to include more than just casualty counts. No war falls neatly into categories; a single conflict might fluctuate between periods of higher and lower intensity over time. This middle level helps to consider the

[75] US White House, *National Security Strategy of the United States of America* (Washington, DC: Government Publishing Office, 2017), 2-3, https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf; US Joint Staff, JP 3-0 (2018), VIII-1. The quotation is from the *National Security Strategy* (p. 3).

range of those fluctuations, not only in conflict intensity, but also in the level national mobilization. If the World Wars are LSCO archetypes, for example, then recent operations in Afghanistan—by comparison—would be considered low intensity conflict. Disputes like the Korean War would fall somewhere in the middle ground, fluctuating between medium-intensity conflict and the lower end of LSCO.[76]

Many future difficulties for JTFs in LSCO are evolutions of earlier ones the Army has faced. One such challenge is aberrant casualties, which emergent technology will increase. In Operation Desert Storm in 1991, precision targeting *lowered* friendly casualties to only about 300 US military deaths in theater.[77] LSCO, however, will mean significant degradation to the electromagnetic spectrum—including the space domain—negating some advantages in technological precision (this issue is one of the key reasons the US founded the Space Force in 2019).[78] If both belligerents degrade one another's precision capabilities and communications, it raises the risk of casualties by increasing the need for closer engagements and propensity for fratricide. Weapons of mass destruction and chemical, biological, radiological, and nuclear agents

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[76] Thomas S. Szayna et al., *Conflict Trends and Conflict Drivers: An Empirical Assessment of Historical Conflict Patterns and Future Conflict Projections* (Santa Monica, CA: RAND Corporation, 2017), 10-11, 17, https://www.rand.org/pubs/research_reports/RR1063.html; "Research Starters: Worldwide Deaths in World War II," Student Resources, National WWII Museum, accessed February 11, 2021, https://www.nationalww2museum.org/students-teachers/student-resources/research-starters/research-starters-worldwide-deaths-world-war. US Army Futures Command (AFC), "Maximizing Human Potential for Multi-Domain Operations" (unpublished White Paper Draft), 9 (Annex A). The logic map in the AFC paper mentions fluctuations between competition and conflict, while Szayna (RAND study) describes the different conflict intensities. Note that although RAND breaks this down (p. 10) so that low-intensity conflict includes 25 battle deaths per year or 1,000 total, medium-intensity includes 1,000 battle deaths per year or 100,000 total, and high intensity includes 100,000 per year or 500,000 total, Figure 4 takes some liberties to slightly alter these counts based on historic wars, and adds ranges of casualties (e.g., 10,000 to 100,000 in medium-intensity conflict).

[77] "U.S. Military Casualties – Persian Gulf War Casualty Summary Desert Storm," Conflict Casualties, Defense Casualty Analysis System, last modified April 23, 2021, accessed April 25, 2021, https://dcas.dmdc.osd.mil/dcas/pages/report_gulf_storm.xhtml; Matt Dietz, "Toward a More Nuanced View of Airpower and Operation Desert Storm," *War on the Rocks*, January 6, 2021, accessed April 25, 2021, https://warontherocks.com/2021/01/toward-a-more-nuanced-view-of-airpower-and-operation-desert-storm/.

[78] US Department of the Air Force, *Letter to the Men and Women of the United States Air Force and United States Space Force* (Washington, DC: Government Publishing Office, 2019), https://www.spaceforce.mil/About-Us/Letter-to-the-Force/.

also increase both casualties and escalation, possibly via a nuclear response. Deaths in the hundreds of thousands would be likely if the US trended toward LSCO.[79]

Army medical doctor and COL Matthew Fandre from the Mission Command Training Program (MCTP)—which evaluates Army divisions and corps—compares LSCO to World War II, where the US military suffered approximately 416,800 military deaths.[80] According to Fandre, five successive MCTP exercises put the average at approximately 50,000 casualties for a force that is 100,000 strong. These included about 10,000 killed, 30,000 wounded and evacuated, and another 10,000 wounded and returned to duty, and each exercise just represents *eight days* of combat; imagine a war lasting a year or more like World War II.[81] Fandre concludes that although "MCTP's units use complex algorithms…even if the accuracy is not perfect, the conclusions drawn from the system data are accurate *enough* to recognize that the United States is not fully prepared for this number of casualties."[82] Civilians are likely to be affected as well.

Some form of "hybrid" warfare—a mix of conventional and irregular tactics—is likely across the entire conflict continuum.[83] Army TRADOC PAM 525-92, *The Operational Environment and the Changing Character of Warfare*—the Army's forecast of future warfare—notes how adversaries will use a mix of conventional and proxy forces to their advantage, denying friendly forces "a conventional force-on-force fight unless the situation is

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[79] US Joint Staff, JP 3-0 (2018), VIII-22 through VIII-24; US Army Training and Doctrine Command, TRADOC Pamphlet (PAM) 525-92, *The Operational Environment and the Changing Character of Warfare* (Fort Eustis, VA: Government Publishing Office, 2019), 17. The TRADOC PAM discusses advances in weapons of mass destruction and chemical weapons closer to the mid-Century (as opposed to 2035), yet some variants of this budding technology might still be available by 2035.

[80] "Research Starters: Worldwide Deaths in World War II," National WWII Museum.

[81] Matthew Fandre, "Medical Changes Needed for Large-Scale Combat Operations: Observations from Mission Command Training Program Warfighter Exercises," *Military Review* 100, no. 3 (May-June 2020): 37, https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MJ-20/Fandre-Medical-Changes.pdf.

[82] Ibid., 45. Emphasis (italics) added.

[83] US Army, TRADOC PAM 525-92, 7; US Department of Defense, Joint Staff, *Joint Operating Environment (JOE) 2035: The Joint Force in a Contested and Disordered World (*Washington, DC: Government Publishing Office, 2016), 7. "Hybrid" is taken from both documents.

advantageous."[84] Counterinsurgency operations are only listed with low intensity conflict in Figure 4 because that is where they would be the JTF's main priority, yet some form of irregular warfare is residual even through LSCO, adding to the JTF's burden as conflict intensifies.

Napoleon Bonaparte's Peninsular War is a good example. The emperor crushed Spanish forces in 1808-1809, yet resistance continued long after he had departed the country. Max Boot in *Invisible Armies*—a history of guerrilla warfare—explains that in 1810-1812 the French maintained some 350,000 troops on the Iberian Peninsula, including 70,000 just to maintain their lines of communication. This meant they could never assemble more than 60,000 troops at a time for tactical engagements against the British Duke of Wellington, which detracted from major campaigns elsewhere in Europe.[85]

In early 1812 Napoleon pulled some 60,000 troops for his Russia campaign, cueing Wellington to transition from the strategic defense in Portugal to the offense. US Army Major Anthony Blackburn, in a School of Advanced Military Studies (SAMS) monograph on the campaign, notes that Wellington's Anglo-Portuguese contingent grew as he took command of Spanish forces in 1813, while the French downsized to 150,000 after Napoleon's "Russian debacle," allowing Anglo-Iberian forces to outnumber them at the Battle of Vitoria in June.[86] There he routed French forces and spent the remainder of the year pursuing them into the

[84] US Army, TRADOC PAM 525-92, 7; Joint Staff, *Joint Operating Environment (JOE) 2035*, 7. Quotations are from TRADOC PAM 525-92 (p. 7).

[85] Max Boot, *Invisible Armies: An Epic History of Guerrilla Warfare from Ancient Times to the Present* (New York, NY: Liveright Publishing Corporation, 2013), 85, 87-88. Discussion on troop numbers and "antiguerrilla duty" is on p. 87. Max Boot is not a historian (he is a Senior Fellow in National Security Studies at the Council on Foreign Relations), but his book offers a worthy overview of guerrilla warfare across multiple conflicts, where each chapter discusses a conflict (this one is devoted to the Peninsular War). He attributes these French force sizes to several sources in his corresponding endnote.

[86] Anthony R. Blackburn, "The Duke in the Peninsula: Arthur Wellesy and the Application of Operational Art During the Peninsular War 1809-1813," (master's monograph, School of Advanced Military Studies, US Army Command and General Staff College, Fort Leavenworth, KS, 2019), 25, 29-33. The "Russian debacle" quotation is from p. 31. According to Blackburn (p. 29), Napoleon pulled 25,000 soldiers in January 1812 and another 35,000 by April (totaling 60,000).

Pyrenees Mountains.[87] Napoleon's withdrawal of forces thus had catastrophic repercussions on the peninsula. A lingering insurgency mixed with LSCO is a dangerous combination for JTFs.

Increased mobilization has several ramifications for the JTF. One is the need to quickly train and employ a large volume of inexperienced servicemembers conscripted through the Selective Service System. Another might include changes to the JTF force structure. In LSCO, for instance, the Joint force may increase its total number of JTFs, while conscription necessitates cross leveling experience already present in the ranks, leading to early promotions for less experienced commanders. FOE 2035 might also foster smaller, more mobile JTFs, while still retaining their multi-domain capabilities and even increasing the authorities given to lower ranking commanders like colonels and brigadier generals. These LSCO changes will drive greater Joint cohesion.

High intensity conflict will compel JTFs to reevaluate, refine, and potentially even move *beyond* MDO to some emergent, next-generation doctrine to better address the changing OE, and these solutions will be increasingly Joint. Some of the worst contingencies in Figure 4 include the possibilities—albeit unlikely—of a multiple theater war or even a kinetic defense of the continental US. Single service components cannot defeat these kinds of threats on their own; JIIM partners must come together or fail catastrophically. TRADOC PAM 525-92 also notes that alliances "will erode," and even if the Joint force maintains its partners, they "might not be able or willing to modernize at the same pace as the [United States]."[88] JTFs must work closely with partnered forces but also be ready to adapt as alliances shift. US forces may have to cover down on capabilities that allies once provided, but this would quickly spread the force thin. In the 2036 Belarus example, a JTF in US Indo-Pacific Command had a higher priority for assets than the US European Command JTF. One of the weaknesses of the MDO concept is that it assumes all the

[87] Blackburn, 33.

[88] US Army, TRADOC PAM 525-92, 15.

required equipment is available for convergence, but really, JTFs will either need JIIM partners to provide capabilities that are pulled to other theaters of war, or they will adapt and do without.

TRADOC PAM 525-92 refers to deterrence at the opposite end of the conflict continuum (left side of Figure 4) as the "'Gray Zone' short of war."[89] The gray zone is preferrable to conflict, but only as the lesser of two evils. Casualties tend to be minimal in competition, however, adversaries have demonstrated considerable advantages in the "human domain," which US Special Operations Command defines as "the people (individuals, groups, and populations) in the environment, including their perceptions, decision-making, and behavior."[90] Reilly counts this as a sixth warfighting domain—and "the most important domain of all"—as the other five domains must come together to affect it.[91] US Air Force Information Operations Officer Megan Kell adds that influence is the "crux of warfare," but Joint leaders generally only pay it lip service, as "operational planning tends to dictate objectives that focus on friendly capabilities and Joint…accessible targets rather than a deliberate strategy of compelling adversary behaviors."[92] The Russians, alternatively, are masters in this domain.

Russia relies on reflexive control theory to preempt decisions. In a research report for the Royal Military College of Canada, authors Keir Giles, James Sherr, and Anthony Seaboyer define reflexive control as "the practice of predetermining an adversary's decision in your favor, by altering key factors in [their] perception of the world."[93] It is evidenced in the Russian invasion

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[89] US Army, TRADOC PAM 525-92, 7.

[90] US White House, *National Security Strategy*, 2-3; US Special Operations Command, *Operating in the Human Domain, Version 1.0* (MacDill Air Force Base, FL: Government Publishing Office, 2015), 3, https://nsiteam.com/social/wp-content/uploads/2017/01/SOF-OHD-Concept-V1.0-3-Aug-15.pdf; Kell, "An Approachable Look at the Human Domain and Why We Should Care." Quotations about the human domain are from the US Special Operations Command *Human Domain* concept, though Kell also quotes this definition and discusses the domain. Note that the capitalization of "Human Domain" from the US Special Operations Command concept is removed in this quotation and throughout the monograph.

[91] US Army, TRADOC PAM 525-3-1, 15-17; US Army, TRADOC PAM 525-92, 7; Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS)." Note that Reilly also considers the electromagnetic spectrum its own domain in place of cyber.

[92] Kell, "An Approachable Look at the Human Domain and Why We Should Care."

[93] Giles, Sherr, and Seaboyer, 4.

of Georgia in 2008, where they first set conditions by discrediting the Georgian president through a series of cyber-attacks against Georgian government services, transportation, and banks. They also used military exercises to preposition forces for the invasion. Following the five-day war, the Russians pushed the European Union for a peace accord on their own terms. JTF commanders should expect similar shaping in gray zone operations, from Russia and other adversaries, preempting potential fait accompli attacks.[94]

The JTF of 2035 must be adept across the instruments of national power—diplomatic, informational, military, economic—to deter aggression and shape the environment in the event of conflict.[95] SAMS professor Dr. Matthew Muehlbauer argues the need for "experts who appreciate all [US service] components for action in the security realm and…synthesize them to achieve political goals."[96] Military solutions, on their own, cannot facilitate lasting stability when the reasons for war are political.[97] Even if the JTF in the 2036 Belarus scenario were to neutralize all Russian conventional forces (without eliciting greater escalation), it would still have to contend with large anti-Western segments of the population, a broken Belorussian economy, the host government's deteriorated ability to maintain order and provide essential services, ongoing border tensions with Russia, and the apathy of some JIIM partners. These are the realities going forward, necessitating shrewd commanders and staffs, especially as AI alters the nature of decision-making.

Although TRADOC PAM 525-92 describes a highly integrated network facilitating incredible AI capabilities by the 2050 timeframe, JTFs are bound to deal with variants of this

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[94] Giles, Sherr, and Seaboyer, 13-18; Connell and Vogler, 12-13.

[95] US Joint Staff, JP 3-0 (2018), II-7, V-4 through V-5, V-7 through V-10.

[96] Matthew Muehlbauer, "Prioritizing Jointness in the Next National Security Strategy," *The Strategy Bridge*, March 23, 2021, accessed April 25, 2021, https://thestrategybridge.org/the-bridge/2021/3/23/prioritizing-jointness-in-the-next-nss.

[97] Ibid.

technology by 2035 for two reasons.[98] One is that increased escalation drives greater interdependence between technology and military necessity, as crises tend to reveal unforeseen operational gaps. Consider the D-DAY invasion of Normandy in 1944, where the Allies were planning to move approximately one million servicemembers across the English Channel into German-occupied France. The need to sustain such a force drove new technologies like the Mulberry artificial harbor and a cross-channel petroleum pipeline.[99] LSCO has the propensity to drive technological innovation, though the other reason emergent AI may be expedited is a phenomenon called "Moore's Law."[100]

Moore's Law posits that the number of transistors on electronic chips essentially doubles every two years, so according to Reilly, "the pace of cyber…robotics, and biotechnology advancements is far beyond the normal capacity to predict their effects."[101] TRADOC PAM 525-92 foresees "[m]assed, coordinated, fast, and collaborative" swarms by 2035, albeit not yet fully integrated until closer to 2050.[102] If Moore's Law holds true, however, this integration may come sooner than predicted. Even today, researchers are experimenting with nascent drone swarms while civilian computer and cell phone companies push the limits of data processing.[103]

Retired US Marine Corps GEN John Allen envisions AI as part of "hyper" warfare,

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[98] US Army, TRADOC PAM 525-92, 10-11, 16.

[99] John J. Marr, "Designing the Victory in Europe," *Military Review* 91, no. 4 (July-August 2011): 66, 67, https://apps.dtic.mil/dtic/tr/fulltext/u2/a550376.pdf; John Phipps, "Mulberry Harbour," D-Day Revisited website, last modified 2012, accessed April 25, 2021, https://d-dayrevisited.co.uk/d-day-history/d-day-landings/mulberry-harbour/.

[100] Gordon E. Moore, "Cramming more components onto integrated circuits," *Electronics* 38, no. 8 (April 19, 1965): 115-116, https://cdn3.weka-fachmedien.de/media_uploads/documents/1429521922-13-gordonmoore1965article.pdf; Jeffrey M. Reilly, "Multidomain Operations: A Subtle but Significant Transition in Military Thought," *Air & Space Power Journal* 30, no. 1 (Spring 2016): 61, https://www.armyupress.army.mil/Portals/7/Hot%20Spots/Documents/MDB/Multi-domainoperations-Reilly.pdf. Moore's original article has no pagination and is not straightforward about the "Law," but Reilly summarizes it and provides the pagination.

[101] Ibid. Moore's prediction is primarily on pp. 115-116 of his article, while the quotation is from Reilly's "Multidomain Operations" (p. 61).

[102] US Army, TRADOC PAM 525-92, 13, 20. Quotation about swarms is from p. 13.

[103] Scharre, 11-13.

which integrates AI into both planning and operations to manage the vast amount of data that humans would otherwise have to process.[104] Perhaps by 2035, this technology will be at a level where planners can input terrain and weather data, intelligence analysis, and friendly forces operational readiness, and then the AI recommends courses of action with probabilities of success and potential risks. This raises a moral question though. If the future is to be "AI-fueled" and "machine-waged," as GEN Allen predicts, where "human decision making is almost entirely absent" so that commanders can make "near-instantaneous responses" to threats, should they?[105] To what degree can JTFs trust autonomous solutions with human lives? Conversely, US forces cannot allow less scrupulous adversaries to make faster decisions, so it remains a conundrum.[106] Faster computing will also change how JTFs communicate, affecting command and control (C2).

Mission command is the linchpin of MDO. ADP 6-0 defines it as "the Army's approach to command and control [C2] that empowers subordinate decision making and decentralized execution appropriate to the situation."[107] TRADOC PAM 525-3-1 projects decentralized decision-making will be vital to MDO, especially as enemies degrade friendly communications. "Commanders," it notes, "must deliberately…foster conditions favorable to mission command so that…disparate formations and capabilities are ready to act upon mutual recognition of an opportunity or in response to a battlefield development."[108] This is how MDO is intended to penetrate enemy area denial networks—by converging effects at key times and locations to gain

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[104] John R. Allen and Amir Hussain, "On Hyper-War," *U.S. Naval Institute Proceedings* 143, no 7 (July 2017), https://www.usni.org/magazines/proceedings/2017/july/hyperwar. Allen and Hussain list this type of warfare as one word: "hyperwar."

[105] Scharre, 361; Allen and Hussain, "On Hyper-War." The quotations are from Allen and Hussain.

[106] Scharre, 361; Kell, "An Approachable Look at the Human Domain and Why We Should Care."

[107] US Department of the Army, Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces* (Washington, DC: Government Publishing Office, 2019), 1-3.

[108] US Army, TRADOC PAM 525-3-1, 21.

short windows of access, which maneuver forces can exploit.[109] The Army must refine mission command for MDO though, as it is *not* appropriate for all situations.

JTF commanders must balance mission command with detailed control. ADP 6-0 describes how "[d]ifferent operations and phases…may require tighter or more relaxed control."[110] Figure 5 illustrates some of these distinctions, however, the publication ultimately delegates C2 to the commander's judgment.[111] Lieutenant Colonel Robert Leonhard, author of a book about operational tempo called *Fighting By Minutes*, argues that C2 depends on information flow. Leonhard notes that in the past, "the flow of timely information allowed only the lower levels of command to truly grasp the battlefield situation," therefore they should be empowered to make decisions—i.e. mission command (which he terms "directive control").[112] The information space is changing though. There are times in FOE 2035 when the JTF headquarters may have greater insight on the common operational picture (COP) than any of the subordinate commands staggered across the five domains, which necessitates centralized, top-down command (or "detailed control" according to Leonhard) to seize fleeting opportunities.[113]

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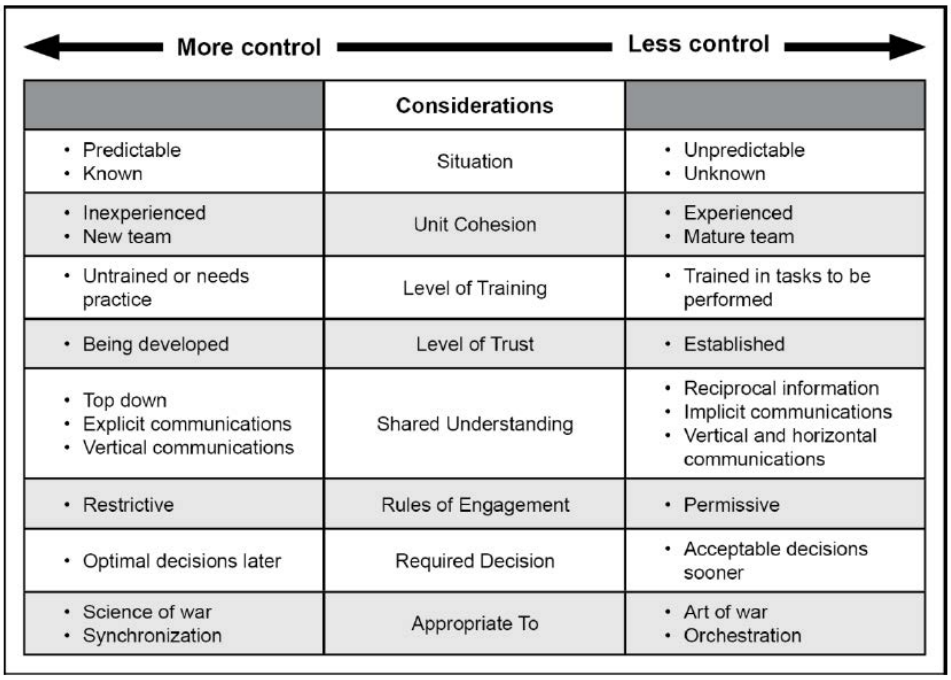
[109] US Army TRADOC PAM 525-3-1, 15-17, 21.

[110] US Army, ADP 6-0, 1-6.

[111] Ibid., 1-5 through 1-6.

[112] Leonhard, 148-149, 151-153. Both quotations ("the flow of timely information" and "directive control") are from p. 149.

[113] Ibid., 137, 149, 152-153, 155, 157, 163. The "detailed control" quotation (capitalized 'D' in the original text) is taken from p. 152. Leonhard offers a balance between "[d]etailed control" where the "headquarters exercises authority and direction over all…decisions" and "[d]irective control," which is essentially mission command, as it "gets the subordinates involved in the decision making" (p. 152). He also describes opportunities as decision points (p. 137), and then uses the subsequent cited pages to delineate how detailed vs. directive control can best seize these opportunities, given the information flow available.



	Considerations	
• Predictable • Known	Situation	• Unpredictable • Unknown
• Inexperienced • New team	Unit Cohesion	• Experienced • Mature team
• Untrained or needs practice	Level of Training	• Trained in tasks to be performed
• Being developed	Level of Trust	• Established
• Top down • Explicit communications • Vertical communications	Shared Understanding	• Reciprocal information • Implicit communications • Vertical and horizontal communications
• Restrictive	Rules of Engagement	• Permissive
• Optimal decisions later	Required Decision	• Acceptable decisions sooner
• Science of war • Synchronization	Appropriate To	• Art of war • Orchestration

Figure 5. Levels of Control. US Department of the Army, Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces* (Washington, DC: Government Publishing Office, 2019), 1-6 (Figure 1-1).

Mission command enables the operational "layering of multiple forms of convergence" that TRADOC PAM 525-3-1 envisions.[114] Convergence is not just synchronizing effects in time and space, which would be more in line with detailed control, but there is also a *layered* version of convergence where JTF commanders provide intent for subordinates across the five domains to seize opportunities at their own echelons and produce *combined* effects against the enemy over time. This is intended to achieve "a net imposition of complexity upon enemy command and control."[115] There is a time for synchronized, tactical convergence—requiring greater detailed control (e.g. at the outset of an operation when JTFs can sequence actions in each domain), and a time for layered convergence throughout an operation—necessitating mission command (e.g. when enemy counteraction inhibits friendly communications or the OE is radically changing).[116]

[114] US Army, TRADOC PAM 525-3-1, 21.

[115] Ibid., 20-21. The "net imposition" quotation is from p. 21.

[116] Dr. Jeffrey Reilly, in multiple periods of in-class instruction at the Air Command and Staff College in Maxwell Air Force Base, AL between August 2019 and May 2020, offered a multi-domain synchronization matrix; Reilly, "Multidomain Operations: A Subtle but Significant Transition in Military

How the JTF Commander Anticipates, Adapts, Responds, and Serves

Conceptualizing how the JTF operates in FOE 2035 enables an understanding of how JTF commanders will anticipate, adapt, respond, and serve. These are the JTF commander competencies, or things they must *do* in future warfare. Table 2 summarizes the anticipation competencies, and two are worth mentioning. The first is that JTF commanders must be operational artists.

Anticipate
• Integrate lethal and nonlethal, kinetic and non-kinetic operations across the conflict continuum • Operational artist—integrate tactical and strategic objectives (maintains 'big picture' and understands strategic tempo) • Identify centers of gravity and decisive points; synchronize (converge) assets from all domains to target or protect them. • Balance mission command with detailed command • Interact with a host of US and partnered leaders from across the instruments of national power (DIME). • Integrate conventional forces and SOF (military and civilians) from across JIIM to drive team cohesion • Rapidly team-build with unique and AOR-specific formations • Maximizes team performance to generate creative options and innovation • Communicate at all levels of war (tactical, operational, strategic) • Rapidly process information to frame or reframe the environment—through AI, harnessing experts, and self-study. • Can recognize and work through ill-structured problems. • Red-team adversary actions, drive MDO IC, and adjust information requirements and decision points.

Source. Created by author.

Operational art implies a certain level of mastery. JTF commanders must synthesize conceptual and detailed planning, and inherently understand how to match the science of war with intuition from personal experience in rapidly evolving environments. ADP 3-0, *Operations* denotes that operational art "requires creative vision, broad experience, and a knowledge of capabilities…across multiple domains."[117] The JTF commander knows when to get involved via detailed command, and when to provide intent and stay hands-off to enable mission command. Operational art also extends to working with JIIM partners and via AI-powered technology. The

Thought," 67-68; Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS);" Nathan Catching, "Upgrading the Future Joint Force Leader: Three Recommendations for Joint Education: Part 2," *Over The Horizon: Multi-Domain Operations and Strategy*, July 1, 2020, accessed May 20, 2021, https://othjournal.com/2020/07/01/upgrading-the-future-joint-force-leader-three-recommendations-for-joint-education-part-2/.

[117] US Department of the Army, Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Publishing Office, 2019), 2-1 through 2-2. Quotation from p. 2-2.

second anticipation competency worth mentioning is the JTF commander's ability to work through ill-structured problems, which ATP 5-0.1 describes as "complex, nonlinear, and dynamic."[118]

Emergent technology will foment many of the ill-structured problems that JTF commanders will wrestle with in the years ahead. Technology brings about great advantages in planning and lethality, but from a systems perspective, it also creates new problems elsewhere in the OE.[119] For instance, how will the JTF commander promote post-conflict peace following the use of low-yield nuclear weapons? The moral implications of employing autonomous systems can also foster problems; after, all an autonomous drone strike that goes awry is still the JTF commander's responsibility, and adversaries will quickly capitalize on perceived lapses in judgment via social media to impact public opinion.[120] Anticipation means considering ill-structured problems and their second and third order effects from many different angles, which enables the commander to better adapt and respond.

Table 3 depicts how JTF commanders are expected to adapt. One of the main highlights is that they must quickly integrate emergent technology—ideally faster than adversaries can do it—but also remain wary of its limitations. Adaptation, perhaps counterintuitively, means *not* being overly wedded to any specific technology or methodology. Weick, in a separate academic paper, provides examples of firefighters who were overtaken by the flames because they refused to drop their heavy tools and run. Author David Epstein cites him in *Range: Why Generalists Triumph in a Specialized World*, concluding that "[t]here are no tools that cannot be dropped, reimagined, or repurposed to navigate an unfamiliar challenge. Even the most sacred tools. Even the tools so taken for granted they become invisible."[121] The French of 1940 should have

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[118] US Army, ATP 5-0.1, 4-2.

[119] Dorner, 2-5, 13-15.

[120] Scharre, 4-5, 8, 361; Reilly, "Over the Horizon: The Multi-Domain Operational Strategist (MDOS);" US Army, ADP 6-0, 2-1.

[121] Karl E. Weick, "Drop Your Tools: An Allegory for Organizational Studies," *Administrative*

dropped any notion of methodical battle, but they failed to reframe their environment and realize it was not working against the German threat. In the future, JTF commanders might face a similar dilemma regarding MDO; they should be prepared to achieve convergence but must be equally ready to adapt MDO or drop it altogether if OE conditions show that it is not working.

Table 3. JTF Adaptation in Future Operational Environment (FOE) 2035.

Adapt
• Processes information quickly (likely AI or ML enabled). • Rapidly integrate new technology into the organization (including fielding, training, and operating with it). • Maintain redundant (even analog) technology as a mitigation against tech disruption. • Understands all cross-domain capabilities well enough to use them in innovative, emergent ways. • Understand personal biases; not overly wedded to specific techniques or technology. • Can liaise with the DIB as needed. • Understands and messages capabilities shortfalls to higher headquarters, but able to operate with the forces available. • Balances JIIM servicemembers' time with operational needs • Understand the information environment, and rapidly adjusts and tailors the narrative to the audience.

Source. Created by author.

Table 4 offers insights about how JTF commanders may respond to threats and shocks in FOE 2035. The main takeaway is that decision-speed will be paramount. It will likely involve some combination of human-AI teaming, with the commander applying overriding judgment. Future JTF commanders must grapple with the distinction between humans *in* the loop (semiautonomous; the machine waits for human permission), humans *on* the loop (supervised autonomous; the machine makes the decision, but humans can supervise and intervene if necessary), and humans *out of* the loop (fully autonomous; no human involvement).[122]

Table 4. JTF Response in Future Operational Environment (FOE) 2035.

Respond
• Quickly make sense of shocks; can distinguish between situational and fundamental surprise in problem reframing. • Recognizes adversary anomalies—when they are not acting as previously anticipated. • Recognizes when to change tactics or even strategies (understands limitations of doctrine). • Accepts, mitigates and underwrites prudent risk. • Balances risk to mission and risk to the force. • Drives operational tempo—can increase or decrease as necessary. • Continuously reframes the environment—adjusts centers of gravity, decisive points, and LOEs to maximize new opportunities and mitigate risk.

Source. Created by author.

Science Quarterly 41, no. 2 (June 1996): 301, 305-308, 312; David Epstein, *Range: Why Generalists Triumph in a Specialized World* (New York: Riverhead Books, 2019), 245-250. Quotation from Epstein (p. 250).

[122] Scharre, 29-30, 361-362.

Table 5 overviews how JTF commanders will serve in FOE 2035. The highlight here is the need to stimulate learning organizational cultures, conducive to open dialogue between all echelons. Harvard professor Dr. Amy Edmondson refers to this as "psychological safety"—the "shared belief that the team is safe for interpersonal risk taking," which stems from building organizational trust.[123] Team members across the JTF must be comfortable voicing concerns and experimenting with new ideas; psychological safety promulgates innovation and cohesion, while also making people in the formation more willing to bring up ethical issues. If JTF commanders altruistically serve the nation, their JIIM partners, and the people in the JTF, then they will naturally adhere to the Army Values and stay ahead of many potential moral issues.

Table 5. JTF Service in Future Operational Environment (FOE) 2035.

Serve
• Ensures the JTF is prepared for war. • Balances a high operational tempo with meeting subordinates' needs (especially for long-duration JTF operations). • Establishes a learning organization—a culture with open dialogue up and down the chain of command. • Upholds a high moral standard, ensuring all personnel are treated with dignity and fairness, per the Army Values. • Proactive about getting ahead of safety issues, to include operational burnout or combat fatigue.

Source. Created by author.

[123] Amy Edmondson, "Psychological safety and learning behavior in work teams," *Administrative Science Quarterly* 44, no. 2 (June 1999): 354, https://content.tcmediasaffaires.com/LAF/lacom/psychological_safety.pdf.

JTF Commander Attributes

Seven attributes are derived from how JTF commanders anticipate, adapt, respond, and serve in FOE 2035. These include systems thinking, strategic thinking and communications, human-AI competence, emotional intelligence, empathy, psychological durability, and inquisitiveness.

Systems thinking, according to ATP 5-0.1, is "a process of understanding how parts of a system work and influence each other as part of a greater whole."[124] This is less about using any specific process and more about how commanders view the OE. Systems thinking enables JTF commanders to recognize the nature of the problem they are dealing with and frame it accordingly. It is about establishing patterns of thought that recognize the many interlinkages and subsystems within the OE so they understand how solving one problem could generate two or three other issues elsewhere in the system.[125] It allows JTF commanders to adapt their operational approaches to continual changes in the OE because it understands both the big picture implications and the minutia.

Strategic thinking and communication are one, combined attribute, worthless apart from one another. A JTF commander's ability to think strategically is of little value if he or she cannot communicate that intent to the formation or make recommendations up the chain of command; conversely, communication at the JTF level without strategic focus fails to enable operational art, which bridges strategy and tactics. Retired BG Huba Wass de Czege, the founder of SAMS, wrote that "campaigns depend on…the mediating and balancing mental interaction between strategic and tactical reasoning – from the top down, and from the bottom up."[126] The

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[124] US Army, ATP 5-0.1, 1-7.

[125] Dorner, 2-5, 13-15.

[126] Huba Wass de Czege, "Thinking and Acting Like an Early Explorer: Operational Art is Not a Level of War," *Small Wars Journal*, March 14, 2011, accessed April 25, 2021, https://smallwarsjournal.com/blog/journal/docs-temp/710-deczege.pdf; US Joint Staff, JP 3-0 (2018), II-3; US Army, ADP 3-0, 2-1. Punctuation note: author adjusted Wass de Czege's second hyphen in pulling it

assumption is that JTF commanders have already proven themselves tactically, though they may not have learned to think strategically. They must begin this transition in their early field grade years, as operational art takes considerable time, repetition, and experience to hone.

Human-AI competence matters in all scenarios across the FOE 2035 conflict continuum. JTF commanders will use a host of autonomous technologies and face enemy state and nonstate actors who are doing the same. Human-AI competence is a more specific version of the MHP sprint team's "technological fluency" attribute.[127] JTF commanders do not need to be technological gurus, as systems thinking will drive them to emplace experts across the JTF to integrate new technology. Commanders do not even require *expertise*—only *competence*. They simply need to know *enough* about their AI capabilities, vulnerabilities, and limitations to seize opportunities and underwrite risk.[128] They need to be able to ask the right questions of the experts in their formations, and to work AI—which powers many emergent technologies—into the operations process (plan, prepare, execute, and assess).[129]

Emotional intelligence, according to psychologists John Mayer and Peter Salovey, "is a type of social intelligence that involves the ability to monitor one's own and others' emotions, to discriminate among them, and to use the information to guide one's thinking and actions."[130] Knowing oneself and others is important at all echelons, but especially JTF command, because it enables commanders to interact with a host of personnel in the JIIM environment, including foreign state officials. TRADOC PAM 525-92, *The Operational Environment* predicts the erosion

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into this paper as a quotation.

[127] Hatzinger, 4.

[128] US Joint Staff, JP 5-0 (2020), IV-25; Reilly, *Operational Design*, 42-44. Both JP 5-0 and Reilly describe critical capabilities, critical vulnerabilities, and critical requirements as part of center of gravity analysis; this framework is a useful lens for considering AI as well.

[129] US Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: Government Publishing Office, 2019), 1-4 through 1-5.

[130] John D. Mayer and Peter Salovey, "The Intelligence of Emotional Intelligence," *Intelligence* 17 (1993): 433, https://eclass.hmu.gr/modules/document/file.php/IP-ERLSF116/Mayer-Salovey.1993-libre.pdf.

of US alliances over time, therefore JTF commanders will be precariously postured as quasi-ambassadors, building new partnerships and striving to maintain old ones, which necessitates emotional intelligence.[131]

Emotional intelligence is also critical to both team building and service because it involves understanding the motivations and aspirations of others. Being able to identify problems in the lives of others, building trust, and recognizing one's own counterproductive leadership tendencies through reflection are all aspects of emotional intelligence that will serve the JTF commander well in the years ahead.[132] Some people are naturally more gifted at it than others, but organizational psychologist Dirk Lindebaum argues that individuals can garner emotional intelligence through gradual, self-development, though coaching and mentorship can offer limited "knowledge about emotions."[133]

Empathy is the cornerstone of selfless service. This attribute runs in a similar vein to emotional intelligence but goes beyond just *understanding* others to *caring* for them as people. This attribute especially correlates to the *serve* competencies. All Army leaders are called to develop subordinates, but servant leaders take this a step further by doing it for altruistic reasons. In the words of servant leadership author Larry Spears, "Servant leadership, like stewardship, assumes first and foremost a commitment to serving the needs of others."[134] Empathy shows legitimate concern for the welfare of other people and accepts them with dignity, even when the JTF commander may not fully agree with their behaviors or decisions.[135] Empathy and emotional

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[131] US Army, TRADOC PAM 525-92, 6, 15, 17.

[132] US Army, ADP 6-22, 8-7 through 8-8.

[133] Mayer and Salovey, 440; Dirk Lindebaum, "Rhetoric or Remedy? A Critique on Developing Emotional Intelligence," *Academy of Management Learning & Education* 8, no. 2 (2009): 233-234; US Army, ADP 6-22, 2-1, 6-2. Quotation is from Lindebaum (p. 234).

[134] Larry C. Spears, "Character and Servant Leadership: Ten Characteristics of Effective, Caring Leaders," *The Journal of Virtues & Leadership* 1, no. 1 (2010): 27-29, https://www.regent.edu/acad/global/publications/jvl/vol1_iss1/Spears_Final.pdf. Quotation from p. 29.

[135] Spears, 27; US Army, ADP 6-22, 6-8 through 6-9; Greenleaf, 27.

intelligence are key ingredients in team building and psychological safety, which are notably important when JTFs are thrown together ad hoc to deal with a crisis.[136]

A second facet of empathy is that it also applies to the enemy. Four interservice officers wrote a *Joint Forces Quarterly* article linking "'military empathy,' or the ability to consider the enemy's perspective," with operational effects.[137] Commanders tend to view each effect only from the friendly perspective instead of considering "how the enemy sees the world," and thus how the JTF wants them to perceive of friendly actions.[138] Reilly builds on this kind of empathy with the notion that friendly forces should look for convergence with the adversary's goals, as it can lead to a better post-operation stability and return to competition.[139]

Psychological durability is an AFC attribute that directly impacts the JTF commander. AFC defines it as "[p]hysical, psychological, and cognitive robustness, endurance, self-awareness, and self-management in the face of the prolonged stresses of extended, autonomous operations and extreme stresses of extended high-intensity combat."[140] Parts of this definition are in line with emotional intelligence (e.g., self-awareness and self-management), though "cognitive robustness" is the element that more closely relates to JTF command.[141]

Taleb coined the term "antifragile," which supposedly goes beyond robustness.[142] He compares antifragility to robustness through metaphor, where robust would be like the phoenix from ancient Greek myth, rising from the ashes when it dies. Antifragile, alternatively, describes

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[136] US Joint Staff, JP 3-33 (2018), I-8; US Army, ATP 3-92, 3-18.

[137] Bradley DeWees, Terry C. Pierce, Ervin J. Rokke, and Anthony Tingle, "Toward a Unified Metric of Kinetic and Nonkinetic Actions: Meaning Fields and the Arc of Effects," *Joint Forces Quarterly*, no. 85 (2nd Quarter 2017): 17, https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-85/jfq-85_16-21_DeWees-et-al.pdf.

[138] Ibid., 21.

[139] Reilly, "Strategic Design: Compiled;" US Army, TRADOC PAM 525-3-1, 16. Reilly discusses convergence; the TRADOC PAM discusses returning to competition on more favorable terms.

[140] Hatzinger, 4.

[141] Ibid.

[142] Taleb, 3.

the hydra, where every time it loses a head, it gains two more in its stead, coming back stronger than before and benefiting from shocks.[143] JTF commanders must constantly problem solve and reframe in challenging environments and against unforgiving opponents. Psychological durability implies resiliency and tenacity despite the frustrations of a constantly changing OE. The only way to develop this kind of durability is through tough, realistic training where individuals must experience, adapt to, and overcome failure.

Inquisitiveness is based on an intrinsic drive for individual learning. Former CJCS GEN Martin Dempsey notes in a 2012 paper that PME "must assist every service member in becoming a life-long learner, always *hungry for new knowledge* and deeper understanding."[144] Inquisitiveness is that hunger for knowledge.[145] The premise of Epstein's book *Range* is that having a wide, general knowledge base for problem solving is important. There is certainly a need for experts in the JTF, but generalists with a range of experiences are equally vital for bringing new insights to old problems. JTF commanders must bring that dimension to future operations.[146] There will be many evolving subjects where commanders must be proactive about their own learning, even if only to keep pace with their own staffs.

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[143] Taleb, 31-34.

[144] Martin E. Dempsey, *Joint Education White Paper*, US Department of Defense (DoD), Joint Chiefs of Staff (JCS) (Washington DC: Government Publishing Officer, 2012), 5, https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/cjcs_wp_education.pdf?ver=2017-12-28-162044-527. Emphasis added.

[145] Nathan Catching, "Upgrading the Future Joint Force Leader: Three Recommendations for Joint Education: Part 1," *Over The Horizon: Multi-Domain Operations and Strategy*, June 29, 2020, accessed April 25, 2021, https://othjournal.com/2020/06/29/upgrading-the-future-joint-force-leader-three-recommendations-for-joint-education-part-1/.

[146] Epstein, 13-14, 290.

Recommendations

The Army must implement these attributes into current leader development practices as soon as possible to groom today's field grade leaders for JTF command in 2035 and beyond. The approach should be *systemic* across the Army and Joint force though; only focusing on traditional Army leader development would be insufficient. The Army should consider three lines of effort (LOEs).

LOE 1: Institutional Domain

LOE 1 (Institutional Domain) is the easiest to impact because it is already under the Army G7's purview. Although changes to leader education take time to implement, doing so can affect entire year group cohorts of officers at once. JPME is already focused on strategic thinking and communications (JLA 1, DLAs 1 and 6, and all SAEs, per Table 1).[147] JPME must add systems thinking to the curriculum by incorporating additional exercises and classroom instruction focused on ill-structured problems (e.g., COVID-19, Army SHARP program, Army housing issues, etc.). This would allow them to get repetitions with the Army Design Methodology or Joint Operational Design, while also coming up with potentially innovative solutions that go beyond any methodology and help the Army deal with real problems. The Army could even introduce basic versions of systems thinking into battalion phase of the Captains' Career Course to start building familiarity earlier in an officer's career, and then dive deeper with each subsequent level of PME.[148]

PME is also an excellent venue to build human-AI integration. SAMS conducts several table-top wargames, to include "blind chess," where opposing sides cannot see one another's boards and are mediated by a white cell.[149] Alternatively, there is also a phenomenon called

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[147] US Department of Defense, *Officer Professional Military Education Policy*, A-2 through A-3, A-A-1 through A-A-2; US Department of Defense, *Special Areas of Emphasis*, cover memorandum.

[148] Huebner, 36.

[149] "Blind chess" was something the author experienced while participating in the SAMS

"freestyle" chess, where teams of humans partner with AI to compete against one another and have outperformed computers operating independently.[150] Now imagine combining these two games in Army PME, beginning at the commissioning source. For instance, a PME venue could set up an AI-enabled Blind Chess match between two teams of student commanders and staffs, where the computer is there to coach them.

Epstein notes that computers dominate chess tactics while humans have the advantage in strategy—playing the long game.[151] If operational art involves the combination of strategy and tactics, then the more students can familiarize themselves with it in a low-risk environment, the better.[152] The Army could even do it at low cost since there are already computer and cell phone chess applications. Similar practices could work for the Chinese game GO—as China is a main strategic focus—or the Army could consider similar software for more operationally-oriented wargames.

LOE 2: Talent Management

LOE 2 (Talent Management) should nest efforts between the Army G1 and G3/5/7, which means setting JTF command as the benchmark and building an operational approach to develop the seven attributes over the course of an officer's career. Officers should have some combination of the attributes by around the twenty-year mark in their careers, as higher casualties and potential conscription in LSCO might drive earlier promotion and lower-echelon JTFs. Future JTF commanders must have even higher proficiency with all the attributes by thirty years

curriculum. This was the term the SAMS instructors gave to the exercise.

[150] Epstein, 22-24, 29; James Bridle, "Rise of the machines: has technology evolved beyond our control?" *The Guardian* (news), June 15, 2018, https://www.theguardian.com/books/2018/jun/15/rise-of-the-machines-has-technology-evolved-beyond-our-control-. The "freestyle" chess quotation is also in quotations in Epstein (p. 23) when referring to tournaments. Bridle discusses how average players armed with AI can beat supercomputers at chess.

[151] Epstein, 22.

[152] Wass de Czege, "Thinking and Acting Like an Early Explorer"; US Joint Staff, JP 3-0 (2018), I-13; US Army, ADP 5-0, 2-10.

of service though.

People may differ in terms of varying degrees of attributes, but still need some combination of each of them. One JTF commander might have natural emotional intelligence while another is a better systems thinker, yet all JTF commanders should have a high level of competence with each of the seven attributes. The Army Research Institute (ARI), in close coordination with the Army Talent Management Task Force (ATMTF), drafted a concept dividing talents into three, subsequent "tiers."[153] The first tier includes seven talent categories (physical, cognitive, interpersonal, etc., different from the seven JTF commander attributes), as depicted on the left side of Figure 6. Each of these talent categories includes its own list of sub-talents (tier 2), and then each of those have their own sub-talents (tier 3).[154]

The ATMTF and ARI should either work the seven JTF commander attributes into this structure or use a similar framework to determine sub-categories of the seven JTF commander attributes, and general benchmarks for when officers must develop each sub-attribute along their career timelines. For example, emotional intelligence might include a sub-attribute like self-awareness, which officers must demonstrate by the time they are battalion commanders. One area of further research, however, is how to measure these attributes, which are highly subjective.

[153] US Army Research Institute (ARI), "Self-Professed Attributes: Revisions and Updates for IPPS-A and ATAP" (slide presentation [unpublished] of KSB Working Group, Washington, DC: ARI for the Behavioral and Social Sciences, May 13, 2020), 5. "Tier" is singular and capitalized in the original ARI slide 5, which became Figure 6 in this monograph.

[154] US Army Research Institute (ARI), "Self-Professed Attributes" (slide presentation [unpublished]), 5-7; US Army, *The Army People Strategy*, 4; O'Brien, "Talent Management Army Staff LPD" (slide presentation), 6.

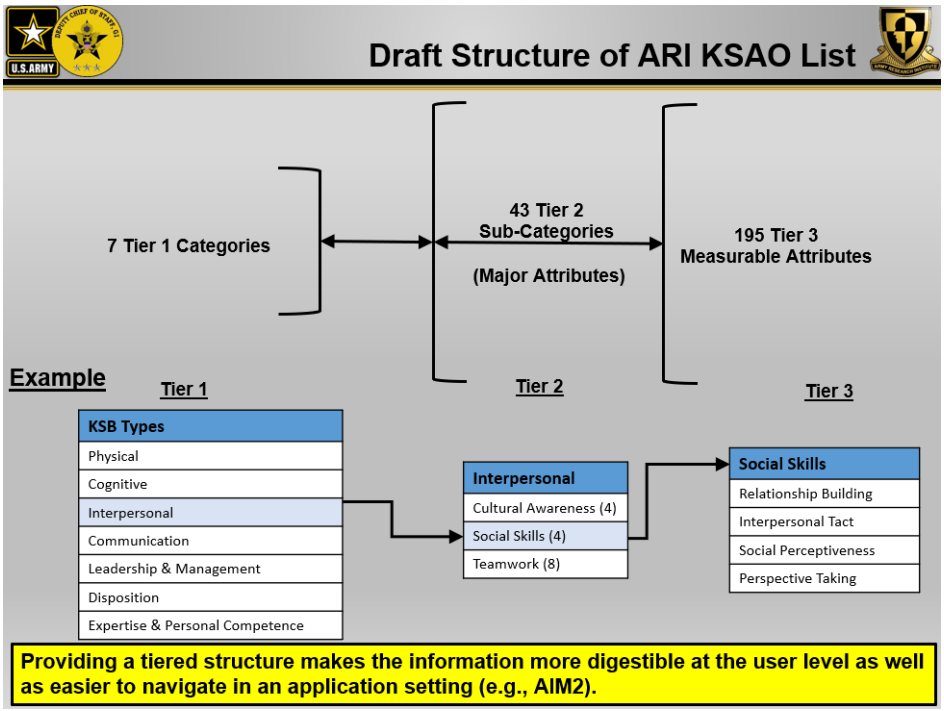

Figure 6. Draft Three-Tier Talent Management Concept. US Army Research Institute (ARI), "Self-Professed Attributes: Revisions and Updates for IPPS-A and ATAP" (slide presentation [unpublished] of KSB Working Group, Washington, DC: ARI for the Behavioral and Social Sciences, May 13, 2020), 5.[155]

Once the Army sets metrics for the seven JTF commander attributes—aligning leader development and talent management—it must expand its assessments to include them. The Battalion Commander's Assessment Program and Colonel Commander's Assessment Program are excellent opportunities to measure attributes, however, these experiences should not be the first time an officer's personal flaws are brought to light.[156] Similar assessments that are voluntary and nonpunitive should begin around the time of the Captain's Career Course, where captains can opt in on a volunteer basis and get a confidential report that is simply informative

[155] Note that in this slide, the Army Research Institute (ARI) uses "Knowledge, Skills, Abilities, and Other Characteristics (KSAOs)," whereas current talent management (via the Army Talent Management Task Force and The Army People Strategy) refer to this as "knowledge, skills, behaviors, and preferences (KSB-Ps)."

[156] Everett Spain, "The Army's NFL Combine: The Battalion Commander Assessment Program," *Modern War Institute*, January 12, 2020, accessed April 25, 2021, https://mwi.usma.edu/armys-nfl-combine-battalion-commander-assessment-program/; O'Brien, 13-16; "Army to hold selection assessment program for colonels," US Army Talent Management Task Force, Army.mil website, July 15, 2020, https://www.army.mil/article/237281/army_to_hold_selection_assessment_program_for_colonels.

rather than an assessment. The intent would be to facilitate a better, individual understanding of strengths and weaknesses long before the O-5 level. Coaches, psychologists, and counselors with backgrounds in leadership, organizational psychology, education, ethics, and even business should assist these young leaders in building uniquely tailored, self-development plans of action much earlier in their careers.

Talent management is bigger than the Army. A recent RAND study points out how today's Army generals collectively have low Joint experience, and when it does occur, it tends to be in settings where Army officers are the majority. If this trend continues, it may breed JTF commanders who are too Army-centric in their thinking.[157] This trend runs counter to the need for increased Jointness in FOE 2035, necessitating more cohesive Joint talent management. The goal would be to facilitate a greater Joint mentality and wider array of experience earlier in officer's careers, which could help with strategic thinking and communications, systems thinking, and even psychological durability.

For example, if Army lieutenants and captains can do a second round of key developmental time as platoon leaders or company commanders in the 75th Ranger Regiment, then perhaps the Army and Joint force could mimic that concept with sister service broadening assignments. A Marine Corps infantry officer could lead a second platoon as an Army infantry platoon leader (commander) and vice-versa. Army aviators could fly with rotary Air Force and Navy elements, service and support personnel could exchange roles, and even branch immaterial staff officers at battalion and brigade levels could garner sister service experience as staff battle captains and planners. This type of talent management renovation is impossible under the current construct though, as it goes against each service component's officer career timelines. A Joint talent management system would have to prioritize Joint broadening over certain service

[157] Kimberly Jackson, et al., *Raising the Flag: Implications of U.S. Military Approaches to General and Flag Officer Development* (Santa Monica, CA: RAND Corporation, 2020), xvi-xvii, https://www.rand.org/pubs/research_reports/RR4347.html.

component assignments, which also requires some level of buy-in, discussion, and negotiation from the respective service components. If greater Jointness is the way ahead, then it must start earlier in an officer's career timeline.

LOE 3: Doctrine

LOE 3 (Doctrine) means the Army and Joint force should consider publishing a specific JTF commander development manual, as these seven attributes apply to more than just the Army. Additional reframing as FOE 2035 draws closer might also expand or adapt these attributes to new challenges. Publishing a JTF commander development plan initiates the necessary discussion about reframing leader development, but this is only the beginning. These attributes must permeate the MDO concept as it transitions into doctrine. The 1982 Field Manual (FM) 100-5, *Operations*—which overviewed "AirLand Battle"—was replete with leader development, stressing "the human element: courageous, well-trained soldiers and *skillful, effective leaders*;" conversely, the modern FM 3-0, *Operations* barely includes the word "leader" at all.[158] Leadership, and in particular JTF commander development, must become the Army's priority.

This discussion also includes further reframing of the MDO concept to consider *detailed* control juxtaposed with mission command. There will be a time for both forms of C2 in FOE 2035, and the Army should determine how to put that into practice sooner rather than later. This discussion is the first step in truly defining MDO convergence, and the second is designing leaders who can achieve it.

[158] In a class discussion on April 1, 2021 in Flint Hall, School of Advanced Military Studies (SAMS), Fort Leavenworth, KS, US Air Force Major Matthew Sabatino and US Army Major Phil Henke pointed out this connection to me, AirLand Battle doctrine emphasizes leadership, while it is heavily lacking from modern doctrine; US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1982), 1-1, 1-3, 1-4, 2-2, 7-1; US Department of the Army, Field Manual (FM) 3-0, *Operations* [Change 1] (Washington, DC: Government Publishing Office, 2017), 1-19, 2-51. FM 3-0 only includes references to "leader" three times. The quotation (from FM 100-5, p. 7-1) italicizes "courageous" through "effective leaders," however, only "skillful, effective leaders" is italicized in this monograph in order to emphasize the focus on leadership.

Conclusion

Scenarios like the Russian invasion of Belarus are not only plausible but could occur much sooner than 2036. JTF commanders must be able to operate with whatever organizational makeup and technology they have at that time. They must anticipate changes in the OE, adapt when they are suddenly thrust into operations, respond to the enemy and force the enemy to do likewise, and balance the constant tension between mission accomplishment and taking care of people. Systems thinking, strategic thinking and communications, human-AI competence, emotional intelligence, empathy, psychological durability, and inquisitiveness are the crucial attributes that JTF commanders must possess in FOE 2035.

Additional reframing of the FOE might reveal new requirements, attributes, and competencies. That is a good thing. The Army should continue to reframe the constantly evolving FOE at least annually, and set attributes for each level of command, which build on one another in an officer's talent management journey toward eventual JTF command. One area for further research would be establishing tangible metrics for the attributes, as they are otherwise highly subjective. The important next step, however, is prioritizing JTF commander development as soon as possible. Most Army officers will never command at this echelon, but the Joint force and the nation will depend on those who do. The Army cannot assume the right people will be in place without first designing them. It must begin this leader development transformation today.

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