The Return of the Defense: Preparing for Great Power Competition

by

MAJ Theodore D. Stouch
US Army

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

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Name of Candidate: MAJ Theodore Stouch

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Approved by:

___//signed/31 MAR 21/AMN//_____, Monograph Director
Amanda M. Nagel, PhD

___//signed/5 APR 21/RGB//_____, Seminar Leader
Gaétan R. Bédard, COL

_____//signed/12 May 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 and Research, CGSC
Dale F. Spurlin, PhD

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Abstract

The Return of the Defense: Preparing for Great Power Competition, by Major Theodore Stouch, 47 pages.

The defense is the strongest form of warfare. However, a primary capability in providing defense, US Army Air and Missile Defense (AMD), is decaying after twenty years of flexible deterrence and flexible response operations. The US Army AMD force must posture itself for a third role: great power competition. The US Army Air and Missile Defense Vision 2028 and Joint All-Domain Operations (JADO) are guiding concepts for supporting defense policy and the missile defense force of the future. If JADO and the AMD 2028 are the next logical progression, then they should provide both a narrative and a capability for providing the United States a competitive edge in the emerging geopolitical environment. Many challenges lay ahead towards their realization, but ample time remains to overcome organizational and capability gaps. Yet, JADO will require Army AMD to reconsider its historical roles and paradigms to prepare for the future.

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Abbreviations

A2/AD	Anti-Access/Area Denial
ABM	Anti-Ballistic Missile
AMD	Air and Missile Defense
AMD 2028	US Army Air and Missile Defense Vision 2028
DoD	Department of Defense
FDO	Flexible Deterrence Option
FM	Field Manual
FRO	Flexible Response Option
GPC	Great Power Competition
HD	Homeland Defense
IAMD	Integrated Air and Missile Defense
IBCS	Integrated Air and Missile Defense Battle Command System
IFF	Identification Friend or Foe
JADO	Joint All-Domain Operations
MD	Missile Defense
MDO	Multi-Domain Operations
MDR	Missile Defense Review
NMD	National Missile Defense
SDI	Strategic Defense Initiative
UAS	Unmanned Aerial System
V-1	*Vertungswaff*-1
V-2	*Vertungswaff*-2

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Introduction

Defense is the strongest form of warfare. So argued Carl von Clausewitz.[1] While the ebb and flow of this idea in both writing and practice remain contested, the United States continues to strengthen the breadth of a global defense-in-depth force posture. Global defense-in-depth means having "a worldwide continuum of networked surveillance and intelligence gathering systems to cover multiple intercepts points for people, weapons, and dangerous materials, and that is linked to resources deducted to reacting instantly to identified threats."[2] This posture is a type of insurance policy to avert a war on its home turf and deter conflict abroad. Over the last few decades, enforcement often consisted of small mobile forces conducting flexible deterrent option (FDO) or flexible response option (FRO) operations. For US Army missile defense, that has translated to increased Patriot missile deployments and reduced short-range missile defense organizations and capabilities. However, while the US military was mired in FDO and FRO contingencies, Russia demonstrated its redesigned force, capable of large-scale combat operations, by annexing the Crimean Peninsula in 2014. Following this situational surprise, the US military renewed its search for an operational construct to reposition itself for great power competition (GPC). With this return, discourse over the role of missile defense has too reemerged as the Joint Force considers new operational constructs, including Joint All-Domain Operations (JADO). JADO is "actions by the joint force in multiple domains integrated in planning and synchronized in executing, at speed and scale needed to gain advantage and accomplish the mission."[3] What changes, if any, will JADO have on missile defense?

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[1] Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 359, 382.

[2] Ibid., vii.

[3] US Department of the Air Force, Annex 3-99: *Department of the Air Force's Role in Joint All-Domain Operations (JADO)* (Washington, DC: Curtis E. LeMay Center for Doctrine Development and Education, 2020), 5.

Background

As the United States prepares for the next era of military competition, missile defense is again a top research and funding priority.[4] US competitors continue to develop an array of air and missile threats to extend their power and influence's physical and cognitive reach.[5] These threats come in traditional forms of manned and unmanned aircraft, aerodynamic missiles, and ballistic missiles.[6] Other emerging air threats affecting operations are developing in the form of enemy capabilities in space, cyberspace, and the electromagnetic spectrum.[7] Fortunately, technological maturation and convergence offer new and innovative ways to integrate effects across domains and create new capabilities within the Joint Force to counter such threats via the JADO concept. Convergence in JADO is meant to enhance effects across multiple domains and counter the emerging anti-access/area denial (A2/AD) capabilities of competitors challenging the rules-based international order.[8] While this is not a new idea, ends, ways and means are beginning to align towards its realization.

The US Army Air Defense Artillery branch is also aligning its resources to compete and win against emerging threats. US Army Air and Missile Defense 2028 (AMD 2028) provides a foundation for how it will array its efforts to support joint and combined operations. "The Army AMD Force of 2028 will provide combatant commanders with a flexible, agile, and integrated AMD force capable of executing Multi-Domain Operations and defending the homeland, regional

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[4] John Ludwigson, US Government Accountability Office (GAO) 19-502T, *Army Modernization: Army Should Take Steps to Reduce Risk* (Washington, DC: United States Government Accountability Office, 2019), 2.

[5] US Department of Defense, Joint Staff, *Joint Operating Environment 2035 (JOE 2035): The Joint Force in a Contested and Disordered World* (Washington, DC: Government Publishing Office, 2016), 7.

[6] Ibid., I-2.

[7] Ibid.

[8] Stephen A. Biddle and Ivan Oelrich, “Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia,” *International Affairs* 41, no 1 (Summer 2016): 8-10.

joint and coalition forces, and critical assets in support of unified land operations."[9] AMD is a term to describe operations "taken to destroy, nullify, or reduce the effectiveness of hostile air and ballistic missile threats to friendly forces and assets."[10] These forces are already conducting AMD operations globally and across all five domains (land, sea, air, space, and cyberspace), making their mission inherently joint. The US Army's AMD role is to provide land-based defense for critical assets and forces as part of the joint integrated air and missile defense (IAMD) system.[11] IAMD describes the Department of Defense (DoD) system to "synchronize aspects of counterair with global missile defense (MD); homeland defense (HD); global-strike; and counter-rocket, artillery, and mortar (C-RAM)."[12] Effective AMD requires interdependence and interoperability with the joint services and coalition partners.[13] Army AMD in concert with JADO seeks to expand the linkages between any sensor to any shooter, bringing unprecedented combat power to joint and coalition partners. The Army program currently being tested is called the integrated air and missile defense battle command system, or IBCS.

This is an important capability given the DoD's assessment of the future operational environment and as firepower becomes more lethal. Despite the emergence of influential

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[9] US Department of the Army, United States Army Space and Missile Defense Command, *Army Air Defense Vision 2028 (AMD 2028)* (Washington, DC: Government Publishing Office, 2019), 3.

[10] US Department of Defense, Joint Staff, Joint Publication (JP) 3-01, *Countering Air and Missile Threats* (Washington, DC: Government Publishing Office, 2017), I-4.

[11] US Department of the Army, Field Manual (FM) 3-01, *US Army Air and Missile Defense Operations* (Washington, DC: Government Publishing Office, 2020), 4-7.

[12] US Joint Staff, JP 3-01, I-1. This monograph uses joint doctrine's definitions to delineate between the different AMD missions. US joint doctrine defines global missile defense as, "missile defense operations, activities, or actions that affect more than one combatant command." Some scholarly work refers to global MD as regional MD or theater MD. It is also important to identify that some scholars refer to global MD as national missile defense or homeland defense (HD). Recent joint doctrine refers to the ballistic missile defense system defending the homeland as the ground-based midcourse defense (GMD) system. GMD is the "surface-to-air ballistic missile defense system for exo-atmospheric midcourse phase interception of long-range ballistic missiles using the ground-based interceptors." The US homeland is defined as "the geographic region comprised of the continental United States, Alaska, Hawaii, US territories and surrounding territorial waters and airspace."

[13] US Army, FM 3-01, 4-7.

international organizations and regimes to control or limit the proliferation of missiles and missile technologies over the last seventy years, many states, including the United States, continue to pursue offensive and defensive capabilities as safeguards against an anarchic international system. Perhaps this is because of the inefficiencies of international regimes or a way to hedge against potential failures. Maybe it is both – a path *towards* antifragility, a way to thrive despite the catastrophic risks inherent to international relations. Something that is antifragile gets stronger despite external circumstances.[14] AMD alone will never achieve antifragility, and total security is a chimera. However, in concert with US nuclear deterrence, MD's ability to absorb and persevere in the wake of the psychological terror posed by missile threats affords decision-makers time and space to determine appropriate responses and negotiate from a position of power.[15]

To create a comprehensive approach to safeguarding US national interest, the pathway towards antifragility requires a reliable and integrated homeland and global MD capability. Since the early 2000s, concepts like global defense-in-depth and global MD have sought to join transregional and strategic defense capabilities. This integration aimed to increase the ability to mass, mix, and integrate MD capabilities and offset evolving missile threats. Global MD is a subset of the US global defense-in-depth system developed in 2002 to address emerging Iranian and North Korean missile threats.[16] The idea proposed in the early 2000s was to change America's intellectual framework of war from the Cold War's forward defense policies towards a global defense policy suited for shaping US interests in the 21st century.[17] However, the US

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[14] Nassim Nicholas Taleb, *Antifragile: Things That Gain from Disorder* (New York: Random House, 2012), 16-17, 179.

[15] US Department of Defense, Office of the Secretary Defense, *Missile Defense Review (MDR) 2019* (Washington: DC, Government Publishing Office, 2019), V-VI.

[16] Vice Admiral Carl V. Mauney, "Space and Missile Defense Symposium" *US Strategic Command* (Aug 13, 2008), accessed February 22, 2021, https://www.stratcom.mil/Media/Speeches/Article/986510/space-and-missile-defense-symposium/.

[17] Antulio J. Echevarria II and Bert B. Tussing, *From "Defending Forward" to "Global Defense in Depth": Globalization and Homeland Security* (Carlisle, PA: Security Studies Institute, US Army War College, 2003), 5-6.

military prioritized counterinsurgency operations in its effort to defend globally. Meanwhile, other states have observed and developed organizational and technological asymmetries to challenge the American military power.

Hypothesis

If JADO and the AMD 2028 are the next logical progression from global defense to address the missile threat, then they should provide both a narrative and a capability to compete in the emerging geopolitical environment. Most importantly, they should provide both politicians and geographic combatant commanders increased flexibility to compete and respond to crises despite beginning from a position of relative disadvantage. Nassim Nicholas Taleb's antifragile construct provides a useful theory to examine the relationship between JADO, AMD 2028, and their approach to solving problems posed by air threats. Yet, there are several challenges to integrating missile defense, particularly strategic missile defense, into the JADO operational construct. Historical precedence, technological feasibility, and fiscal constraints remain significant physical and psychological hurdles to realizing the benefits of globalized missile defense, even without considering the implications of JADO. A prolonged period of US hegemony allowed the United States to realize its political goals within the international system and reinforce its philosophy of rules-based international order. However, previous US military doctrine falls short of achieving antifragile principles. Recent US-led conflicts provided ample room for mistakes that minimally challenged its intellectual framework.[18] Room for error will be significantly limited, nor will overwhelming force necessarily achieve victory. Therefore, JADO and AMD 2028 must provide the cognitive space to learn while still retaining the ability to create its future.

[18] Antulio J. Echevarria II, "American Operational Art, 1917-2008," in *The Evolution of Operational Art: From Napoleon to the Present*, ed. John Andreas Olsen and Martin van Creveld (New York: Oxford University Press, 2011), 160.

Structure

This monograph has three sections. First, it explores the relationships between the theoretical construct of antifragility, the return of defense as the strongest form of war, and how JADO seeks to create opportunities while starting from the defense. Next, it explores MD's role in the future operational environment and the paradigms that continue to inform its employment. Finally, this paper explores the concept of antifragility with the similarities and the differences of missile defense's role in JADO with AMD 2028 as the United States competes with peer and near-peer adversaries. Air defense will undoubtedly play an important role in the future of warfare and is an integral component to shaping the strategic and operational environment. However, AMD will continue to be challenged by prolonged 19th century frameworks based on short, decisive warfare, rapidly evolving threats, and budgetary constraints.

Reexamining the Efficacy of the Defense

How does a military prepare for its next fight? While the nature of war, its grammar, remains consistent, determining its logic is difficult, if not fanciful.[19] One approach is to offset threats through deterrence. Deterrence assets, such as the US nuclear triad and its global military force projection capabilities, strengthen the United States' credibility in protecting its national interests.[20] Over the last century, the United States has demonstrated its ability and willingness to carry the fight to an enemy. Yet, its ability to endure in the shadow of a threat is its true source of power. While MD has faced technological setbacks, it is a system that provides an unprecedented ability to project power and influence in three key ways: (1) by protecting the US homeland and forces abroad; (2) contributing to deterring attacks against the United States, allies and partners, and (3)enabling regional and transregional military operations.[21] AMD is an easily overlooked

[19] Echevarria, 135.

[20] Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars* (Ithaca, NY: Cornell University Press, 1984), 231.

[21] US Department of Defense, *MDR 2019*, V-VI.

and underappreciated component of US power to maintaining antifragile-like credibility in an environment where missiles and airpower are genuine threats to the US homeland. As a capability that allows the United States to "parry a blow" in the missile age, AMD plays a vital role in aligning military capabilities with US policy in a politically palatable way.

As a benign hegemony, the US military will not predict the exact place and time of its next engagement. As the US military is refocusing on returning to GPC, this is an important consideration for military planners and political decision-makers alike. Taleb's antifragility of a theory of action offers a useful lens to assess the United States' approach to warfare. It argues that while the offense has dominated the American intellectual framework of the battlefield, the defense was and remains the solution to preserving US power. The way it employs its people and technology will offset the cognitive dissonance when faced with uncertainty. It must strive to be antifragile.

An Antifragile Theory of Action

Antifragility describes a system that gains from external stress and agitation.[22] It is based on an idea that is rather old and evolutionary, dating back to Greek and Roman Stoic philosophers. Taleb defines antifragility as a system that "tends to gain from (a) volatility, (b) randomness, (c) errors, (d) uncertainty, (e) stressors, (f) time."[23] An excellent method to evaluate a system's antifragility is to examine two elements. First is the system's ability to withstand an unexpected event. If it is fragile, we should expect it to fail.[24] Fragile systems must be cared for, watched carefully, and nurtured if they are likely to endure. Examples of fragility are abundant, from a glass bottle to a failed business, to a failed state. If something is fragile it is susceptible to

[22] Taleb, 52.

[23] Ibid., 479.

[24] Ibid., 86.

harm or volatility, the opposite of what a state in an anarchic international system seeks to be. However, if the system is antifragile, it will withstand shocks, extract lessons, and grow stronger.

The second critical element of an antifragile system is its capacity for rumination and learning. Self-analysis and learning assure adaptation and agility while creating rather than reacting to future conditions. Taleb refers to a system that is slow or unwilling to change as robust. A robust system describes something that is resilient to shock but stays the same despite the changes around it. Robustness is often mistaken for antifragility. Robustness, or its synonyms strength, resilience, or solidity, is not fragility's antithesis. It is confusing robustness with antifragility that leads that some systems to fail. Robustness is a neutral idea that resides in the middle of the fragility-antifragility spectrum.[25] It is problematic because it can lead to laziness and complacency. Marshall Goldsmith's *What Got You Here Will Not Get You There* summarizes this idea, supporting Taleb's assertions.[26] Taleb writes, "The resilient resists shocks and stays the same, the antifragile gets better."[27] Like the Hydra that grows two heads for each beheaded, antifragility thrives in the face of variations, surprises, and anomalies.[28] It learns from the errors it observes or makes while retaining the ability to create its future.[29]

An example of an antifragile system is the human immune system and its reaction to a vaccination. A vaccination introduces low levels of a harmful virus or bacteria into a patient. While these pathogens can be lethal, the low dosage of a vaccination's antigens allows the patient's immune system to recognize a viral threat. In turn, the immune system learns about the

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[25] Ibid., 46.

[26] Marshall Goldsmith, *What Got You Here Will Not Get You There* (New York: Hyperion, 2007), 7-8.

[27] Taleb, 16.

[28] Ibid., 48.

[29] Ibid., 92-93.

threat, produces antibodies, and produces both ways and means to attack harmful pathogens aggressively.

Antifragility is also a theory underlying the US DoD's aspirations of succeeding in its next fight currently being codified in JADO. In the wake of recent geopolitical events, the joint force is posturing for an environment of contested norms and persistent conflict.[30] In this environment, the military's goal becomes less about decisive victory but providing a range of tools for managing competition and crises.[31] It is best to understand and address the threats facing the DoD in small doses like a vaccination. Such a method allows organizational learning to build adaptive and resilient systems and craft appropriate responses in time, purpose, and scale. This does not mean the DoD can defeat every threat to the United States outright. However, it must be able to respond in kind and quickly reorient itself to meet policy objectives.

Thus, while the military will never be completely antifragile, its goal must be to reside between the robust-antifragile spectrum rather than the robust-fragile. The renewed emphasis on the shape phase of operations in JADO facilitates the military's understanding of the environment's trends. From there, it can develop countermeasures and asymmetries to shift into a theater to mitigate emergent threats and set conditions for realizing political objectives. Thinking in terms of competition rather than victory or domination is essential to realizing long-term strategic objectives.[32]

For the military, it also means embracing a recursive process to find and orient modernization efforts. Such a process demands close attention to trends and emergent technologies within the international system to avoid a surprise to the United States and its interests. However, technology will not provide the ultimate solution. More fundamentally, it

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[30] US Joint Staff, *JOE 2035*, 4.

[31] US Department of the Air Force, Air Force Doctrine Note 1-20: *USAF Role in Joint All Domain Operations* (Washington, DC, Government Publishing Office, 2020), 2.

[32] Everett Dolman, *Pure Strategy: Power and Principle in the Space and Information Age* (New York: Frank Cass, 2005), 5-6.

demands the military to contemplate Clausewitz's critical assertion: defense is the strongest form of warfare. From there, it can begin aligning the ways and means for achieving objectives despite starting from a position of disadvantage.

The "Return" of Defense as the Strongest Form of War

Defense has always been the strongest form of war. While history aggrandizes the exploits of the few strategic genii, they are the exceptional few.[33] These include Gustavus Augustus, Napoleon Bonaparte, and Ulysses S. Grant. Their exploits provide both inspirational and educational narratives for the military professional mentally preparing for the next war. While important, their stories depict a decisive commander on the offense. While these stories are inspiring, the approach is fundamentally flawed. First, their genius for war is a rare quality. Second, their conquests are fundamentally more difficult to achieve. The military will require commanders to be bold, audacious, and decisive. However, the US government will not afford commanders the luxury of expending countless lives to learn those qualities; Vietnam and Somalia's experiences are indicators of that trend. Finally, the United States is a status quo power. While a preemptive doctrine is now part of what Antulio Echevarria calls the US grammar of war, changes in the global environment necessitate a revaluation of its efficacy.[34] The defense offers a way ahead because its qualities, as described by Clausewitz, lean towards the antifragile.

Modern warfare requires a systematic approach to layer multiple effects across time, space, and domain. It is a novel approach to combined arms warfare where destructive and constructive effects are still in a testing phase. However, the post-1945 international environment makes the aggressive purposes associated with the offense risky, politically, and existentially. While not a new 21st century phenomenon, GPC states and their nuclear and conventional arsenals can make any miscalculation lethal to humanity. While technology may entice some to

[33] James Lacey and Williamson Murray, *Gods of War: History's Greats Military Rivals* (New York: Random House, 2020), 3.

[34] Echevarria, "American Operational Art,"137.

believe in the offense's primacy, this leads to the same narrative responsible for enabling two world wars and with an ability to make the world uninhabitable for humanity. The defense offers both the ability to withstand shocks, provides opportunities to learn while providing time to respond from a position of strength and often with partners. With that in mind, Clausewitz's argument that "War serves the purpose of the defense more than that of the aggressor" achieves a different meaning today.[35] He continues, "It is only aggression that calls forth defense, and war along with it."[36] These ideas are codified in UN charters for rules-based international order, most recently in its Responsibility to Protect doctrine.[37]

What is puzzling in the nuclear age is the continued relevance of another key point from *On War*, Book VI: the defense does not preclude offensive action. Clausewitz argues, "When one has used defensive measures successfully, a more favorable balance of strength is usually created; thus, the natural course in war is to begin defensively and end by attacking."[38] While nuclear weapons have deterred war between major powers, they have not prevented them from competing for a superior power position. Keir Lieber and Daryl Press argue this is because nuclear stalemate is reversible.[39] This is an important finding in the post-Cold War international environment where the United States has accepted a more liberal interpretation of what constitutes a preemptive war.

Until the 2002 US National Security Strategy, the United States' definition of preemptive war adhered to international law's definition. This definition includes the ideas of necessity, proportionality, and imminence in relation to self-defense. "To be true self-defense, there is no

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[35] Clausewitz, 370.

[36] Ibid., 370.

[37] Anne-Marie Slaughter, *The Chessboard and the Web: Strategies of Connection in a Networked World* (New Haven, CT: Yale University Press, 2017), 179.

[38] Clausewitz, 358.

[39] Keir A. Lieber and Daryl G. Press, *The Myth of the Nuclear Revolution: Power Politics in the Nuclear Age* (Ithaca, NY: Cornell University Press, 2020), 123.

time for deliberation and little room for choice because war is in the process of breaking out."[40] Following the collapse of the Soviet Union, the geopolitical environment allowed US Presidents room to redefine the US definition of preemptive to exert influence in the new security environment. However, the George W. Bush administration's 2002 National Security Strategy introduced more ambiguity to the term to deal with global terrorism, focusing only on imminence.[41] This choice made preemptive war more akin to preventive war as the definitional adjustment makes it politically easier to justify offensive military action.[42] Preemptive implies a war of necessity, while preventative implies a war of choice.[43] However, it is operationally less decisive as adversaries, knowingly provoking US action, can take precautions to protect their critical systems from attack.[44] As the geopolitical environment changes, it is important to revisit the idea of these definitions, particularly imminence. US policy and military doctrine must continue to adapt and evolve with changes in the international system. Today, as the United States' status as a unipolar hegemon is increasingly under question by allies, partners, and adversaries alike, it may be time to take a closer look.

The 1950s offer an insightful lens for today when leaders faced both GPC and the potential of catastrophic destruction. The post-World War II nuclear and missile military revolution required political and military leaders alike to reframe their vision for the future. For US and Soviet leaders, the essential task was to avoid a nuclear exchange despite divergent

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[40] G. Thomas Goodnight, "Strategic Doctrine, Public Debate, and the Terror War," in *Hitting First: Preventative Force in US Security Strategy*, ed. William W. Keller and Gordon R. Mitchell (Pittsburgh, PA: University of Pittsburgh Press, 2002), 103.

[41] Ibid., 102.

[42] Roger A. Payne, "Deliberate Before Striking First," in *Hitting First: Preventative Force in US Security Strategy*, ed. William W. Keller and Gordon R. Mitchell (Pittsburgh, PA: University of Pittsburgh Press, 2002), 116.

[43] Richard N. Haass, *War of Necessity, War of Choice: A Memoir of Two Iraq Wars* (New York: Simon and Schuster, 2009), 12.

[44] Goodnight, 103.

ideological views. Some of the most influential American actors leading this reframe were RAND Corporation employees Bernard Brodie, Thomas Schelling, and Albert Wohlstetter.[45] They sought ways to condition the Soviet Union and its behavior through deterrence.[46] Deterrence is "the deliberate attempt to manipulate the behavior of others through conditional threats."[47] Their approach attempted to balance technology, the preponderance of force, and force structure under the shadow of nuclear-armed missiles and aircraft.

Yet their theories were problematic to many military leaders socialized in a culture that coveted the offense. Brodie, in particular, was critical of the military for that very reason. He acknowledged the military's role and its chief purpose until the atomic age to win wars.[48] To him, the nuclear age changed that role. The military's role was now to avert war.[49] Driving his conclusion was the fact US policy rejected preventive war.[50] Brodie writes, "[Military officers] are trained to be biased in favor of the offensive, as much as the ordinary persons are trained to be biased in favor of virtue."[51] This is problematic to Brodie because of the delta between policy and military doctrine in the nuclear age. The offense tends to be synonymous with aggressiveness in military culture. While Brodie does not find fault in aggressive leadership, he does fault military leadership for missing the changes to the operational environment that hamper the cult of the offensive.[52] To Brodie and Schelling, it was the US military's lack of academic rigor to justify

[45] Lawrence Freedman, *Strategy: A History* (New York: Oxford University Press, 2013), 159.

[46] Ibid., 157.

[47] Lawrence Freedman, *Deterrence* (Cambridge, MA: Polity Press), 6.

[48] Freedman, *Deterrence*, 146.

[49] Ibid.

[50] Bernard Brodie, *Strategy in the Missile Age* (Santa Monica, CA: RAND Corporation, 1958), 174.

[51] Brodie, 174.

[52] Ibid.

assessments.[53] Military institutions worldwide bear the responsibility for instilling the primacy of the offensive during the interwar period between the two world wars. History, theory, and doctrine supported their conclusions.

A military's intellectual framework of warfare stems from three places: its organizational culture, experience, and leadership.[54] Military organizational culture is a paradigm derived from the accepted norms carried by traditions and its interpretation of history, theory, and doctrine. Experience on the battlefield unveils challenges to established paradigms. Military leadership comprises the individuals responsible for translating experiences to create new paradigms to influence organizational change to cope with changes to the organization's intellectual framework. A learning organization can manage this system well. However, when it lacks the experience to challenge its paradigms, changes will be slow if they come at all. However, military culture prefers the offensive because it is easier to reduce uncertainty, increase organization size and wealth, and increase autonomy from civilian authority.[55]

The offensive mindset dominated the intellectual framework of warfare throughout the 19th and 20th centuries and for an acceptable reason. The political gains from a quick, decisive battle made famous by Napoleon and his theoretic disciples emphasized the prospects of absolute gains rather than the more likely attained relative gains. Realization of decisive victory remains the sign of military genius, superior staff work, and *élan.* Yet, these victories are often elusive and perhaps even strategically dangerous given the lethal variables of modern war.[56] The success of

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[53] Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, NJ: Princeton University Press, 2004), 207-208.

[54] Michael A. Bonura, *Under the Shadow of Napoleon: French Influence on the American Way of War from the Ware of 1812 to the Outbreak of WWII* (New York: New York University Press, 2012), 260.

[55] Posen, 35-38.

[56] Cathal J. Nolan, *The Allure of Battle: A History of How Wars Have Been Won and Lost* (New York: Oxford University Press, 2017), 573.

those possessing *coup d'oeil* has helped some while simultaneously inflicting misery on a colossal scale for others.[57]

For many militaries, their fundamental theoretic insights come from two theorists: Antione Jomini and Carl von Clausewitz. Brodie's observation is that their readership gained an excessive bias to the offensive.[58] Cathal Nolan, writing more recently, also comes to a similar conclusion. "Battle-seeking as a heroic ideal was embedded in the history of the Napoleonic Wars and then in the work of Jomini and Clausewitz and others, who elevated the normal allure of battle to a level of pseudoscientific dogma."[59] What is more, foundational doctrinal ideas are built on inconsistent publication and interpretations of *On War*. For example, the popular abridged version entirely excluded Book VI, "Defense," for its early 20th century readership.[60] While that was remedied with Michael Howard and Peter Paret's landmark translation of *On War*, Book VI appears not to have recovered.[61] That is problematic because Book VI is critical to Clausewitz's assertion in Book I, Chapter 1. He writes, "I am convinced that the superiority of the defensive (if rightly understood) is very great, far greater than appears at first sight."[62]

In Book VI, Clausewitz explains what he means by "defense (if rightly understood)." He describes the concept of defense as that of "parrying a blow" and its characteristic as "awaiting a blow."[63] It is the defense's supremacy that all of war's other forms are subordinate to it.[64] However, as he argues, the defense is far from passive. "[The] defensive form of war is not a

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[57] Lacey and Murray, 4-5.

[58] Brodie, iii-iv.

[59] Nolan, 575.

[60] Jon Sumida, "On Defense as the Strongest Form of War," in *Clausewitz in the Twenty-First Century*, ed. Hew Strachan and Andreas Herberg-Rothe (New York: Oxford University Press, 2007), 177.

[61] Sumida, 177-179.

[62] Clausewitz, 84.

[63] Ibid., 357.

[64] Sumida, 178.

simple shield, but a shield made up of well-directed blows."[65] Thus, the translations of *On War* predating the Howard and Paret version had a fundamental logic gap between politics and war and the tremendous advantages the defense serves.

Theories are admittedly hard to understand. Clausewitz's are notoriously difficult to follow. Yet that is the point. Jon Sumida contends, "Clausewitz wrote in this fashion because his primary concern was not the knowing of certain things, but the character of perception that preceded knowing."[66] On the other hand, history represents a past made to be accessible to its readership. It provides a rich and valuable lens to represent the past. As such, history is scaled and scoped to draw out lessons and continuities, and, as John Lewis Gaddis argues, it may be all we have to make sense of the future.[67] However, narrow readings of history, such as Napoleon's great exploits at Jena, demonstrate the exceptions rather than the rule. Nolan writes, "Military history has too often ignored studying defense due to a distorting fascination with generalship in the offense, as successive generations strove to overcome both deep natural and new technological advantages accruing to positional war and defensive postures."[68]

Whether or not military institutions embrace the reality of the battlefield, the post-1945 political and security environment changed the offense's role. Conventional wars preceding the atomic bomb's advent inflicted tremendous fiscal and human costs for pursuing war for a positive purpose, those that seek to influence rather than preserve. Those costs were dwarfed compared to those imposed by nuclear destruction. While Brodie's criticism of military officers is a continuation of an age-old confrontation between theorists and practitioners, Brodie's critique must endure as a reminder to assess assumptions and biases. The atrophy of the Soviet Union as a

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[65] Ibid.

[66] Ibid., 181.

[67] John Lewis Gaddis, *The Landscape of History: How Historians Map the Past* (New York: Oxford University Press, 2002), 3, 33.

[68] Nolan, 9.

military threat did little to reverse the defense's role or the dangers posed by missile threats, particularly by states with nuclear weapons. Today's most concerning threats to the United States continue to fit those presented by the Soviet Union: a threat to the post-1945 liberal, rules-based international order.

It was not until the introduction of nuclear weapons did a persuasive enough anomaly present itself to sufficiently challenge the offensive paradigm. The offense clearly fulfills an essential role in asserting military power and realizing political objectives. However, in the post-1945 world order, projecting military power for a positive purpose, be it to seize territory or preemptively attack a perceived threat, still carries a significant cost. For example, despite the provocation of Kuwait's slant drilling practices into Iraqi oil fields, Sadaam Hussain elicited an international military response with his 1990 invasion of Kuwait.[69] Similarly, the US military 2003 preemptive invasion of Iraq was designed to be a scalpel to rid the world of evil. Eighteen years later, the US military has forces deployed to Iraq managing unforeseen fallout in the form of the Islamic State. Military power remains a blunt instrument, no matter how precise. Maintaining a defensive posture is critical to US policy of maintaining the credibility of a benign hegemon. As the military develops future US operational constructs it must remember that despite its perceived technological dominance, that degree of dominance is probably a standard deviation from reality.

It can be argued the US Army's paradigm for future war is based on its interpretation of Operation Desert Storm. Desert Storm offers an excellent narrative of what networked, combined arms warfare can achieve. However, like France's theory of victory following World War I, it should be consumed cautiously. Social pressure, overconfidence in twenty-year-old doctrine, and

[69] US Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Government Printing Office, 1992), 6.

a disgraced adversary all worked against France's readiness on the eve of war in May 1940.[70] The US military is in a similar situation to France in 1940. It won the Cold War, secured a landmark victory in 1991, and enjoys a preponderance of respect for its exploits. It is resting quite comfortably on its laurels. However, success was achieved against an adversary that was not as lethal as intelligence estimated, at a rate slightly faster than Germany's 1940 invasion of France, and in a world where it exerts global influence. It cannot assume offensive dominance.

Robert Scales recently asserted the US military has a problem with visioning given the emerging operational environment.[71] While the US political environment requires a military strategy, it should be based on a strong defense given its status quo policy goals. Clausewitz writes, "When one has used defensive measures successfully, a more favorable balance of strength is usually created; thus, the natural course in war is to begin defensively and end by attacking."[72] Does JADO offer a pathway to making the defense work and mitigating a fundamental problem the US military has struggled for decades: how to win from a position of relative disadvantage?

JADO: A Concept for the 21st Century?

JADO is a concept focused on cross-domain integration. It places a particular emphasis on connectivity improvements between sensors and effects across the joint services through an

[70] Eugenia C. Kiesling, "Resting Uncomfortably on Its Laurels," in *The Challenge of Change: Military Institutions and New Realities, 1918-1941*, ed. Harold R. Winton and David R. Mets (Lincoln, NE: University of Nebraska Press, 2000), 24.

[71] Robert H. Scales, "The Great Duality and the Future of the Army: Does Technology Favor the Offense or Defense?" *War on the Rocks* (September 3, 2019), accessed October 9, 2020, https://warontherocks.com/2019/09/the-great-duality-and-the-future-of-the-army-does-technology-favor-the-offensive-or-defensive/#:~:text=BECOME%20A%20MEMBER-,The%20Great%20Duality%20and%20the%20Future%20of%20the%20Army%3A%20Does,Favor%20the%20Offensive%20or%20Defensive%3F&text=Doctrine%20is%20an%20army's%20game%20plan.&text=The%20progression%20that%20leads%20to,future%20wars%20will%20be%20fought.

[72] Clausewitz, 358.

integrated, redundant network.[73] The idea is to use an Uber-like taxi-service system to connect a target to the nearest and most appropriate effect using a robust sensor network in an environment characterized by reduced freedom of maneuver.[74] This ability overcomes a significant problem to planners: how to gain superiority in specific domains across time, space, and purpose.[75] When a target, such as an enemy missile, is detected, an algorithm will identify the nearest available system to defeat or neutralize the specified target. A notification of the target's information, such as location, distance, and speed, is sent to the selected system for engagement. This is not a new idea. However, technological maturation to integrate and synchronize multiple systems in time, space, and purpose is finally becoming less complicated and cost-prohibitive. What sets JADO apart is its effort to centralize and combine maturing and emerging technology into a doctrinal concept. As such, it attempts to orient force design, organization, and acquisition for an array of divergent but dangerous potential futures using service-driven, bottom-up capabilities development.

Yet, its theory of action for future conflict closely resembles the doctrine of AirLand Battle. It focuses on creating windows of opportunity in several domains to attack an adversary's critical vulnerabilities and force their military's culmination while adding the critical domains of space and cyberspace to the concept. There are two problems with modeling future concepts on this doctrine. First, AirLand Battle was designed in the 1980s to defeat a conventional Soviet Army attack in Eastern Europe. It conceived of using maneuver and fires to disintegrate the attacker and hasten his culmination.[76] However, its first combat test was Operation Desert Storm.

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[73] John R. Hoehn, *Joint All Domain Command and Control (JADC2)* (Washington, DC: Congressional Research Service, 2020), 1.

[74] Ibid.

[75] Annex 3-99, *Department of the Air Force's Role in Joint All-Domain Operations (JADO)* (Washington, DC: Curtis E. LeMay Center for Doctrine Development and Education, 2020), 1.

[76] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (New York: Frank Cass Publishing, 1997), 264.

The adversary was not nearly as militarily capable as original estimates assessed, and it certainly was not the Red Army. Therefore, Operation Desert Shield/Desert Storm is a false-positive assessment of AirLand Battle as both an effective offensive and defensive doctrine for the United States against a near-peer adversary.[77] Second, asymmetric technologies enabling AirLand Battle are both well understood by adversaries and are increasingly available to state and non-state actors alike. Access to commercial space-based sensors and infrastructure, unmanned aerial systems, and cyberspace enhance everyone's ability to target and disrupt combat systems.

One problem is recognizing the risks imposed by new technology and weapons. American military doctrine has often dealt with uncertainty by taking the initiative, which often translates to building offensive technological asymmetry. It is an idea that underlies many military doctrines. Yet, the emergent US military operational constructs account for its waning advantage in asymmetric technology. While still focusing on the problem of force projection, JADO operates in terms of competition and crisis rather than just decisive victory.[78] This is not admitting defeat or an unwillingness to compete but instead charting a path towards antifragility using clear-eyed rationality via a scalable doctrine across the levels of war. This is a clear organizational shift from the typical offensive doctrine tendencies of many military organizations. For the US military, that shift includes growing from Operation Desert Storm.

Examining modern military transitions, Stephen Biddle argues that much of the modern military structure and tactics are paradigms from World War I. Technology and systems have improved. Weapons are more lethal and can affect targets at a greater range. Integrating these systems is paramount to achieving combined arms effects. However, the greater the complexity of these systems, the more generalized the expertise is required to use them.[79] He also argues that

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[77] Scales, "The Great Duality and the Future of the Army."

[78] Office of the Joint Chiefs of Staff, *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (Washington, DC: Government Publishing Office, 2016), 14.

[79] Biddle, 38-39.

the speed of war has increased in the margins since World War I.[80] While the introduction of technologies such as hypersonic weapons will certainly speed up specific capabilities within the operational environment, land warfare will remain tied to geography and the rate of march.

A second problem is the US military's paradigm for warfare. Despite the shadow of nuclear disaster during the Cold War, the absence of both nuclear war and near-peer conventional warfare resulted in the US military not having the social, cultural experiences nor the crisis on the battlefield necessary to drive changes to its intellectual framework.[81] Technological innovations exacerbate the acuteness of the missile threat. Today, a conventionally-armed hypersonic missile is equally discomforting. Hypersonic weapons threaten to speed up what is already being called hyperactive warfare and present a novel threat today, much like Hitler's *Vertungswaffe*-weapons in 1944. While hyperactivity may be overstating the reality of future war, these weapons can achieve depth at speeds of up to Mach 20.[82]

One final concern regards force posture. One attribute that makes the United States military great is its trust in its junior leaders to execute independent decision-making. Biddle argues that this is an asymmetry that modern force structure systems have over autocratic, highly hierarchical force structures.[83] Future concepts will require highly specialized technical skillsets in addition to those to organize and lead formations. The United States' an all-volunteer force remains an asymmetric advantage. However, it takes time, commitment, and resources to develop these skills to have a force capable of operationalizing these capabilities.

As Cold Warriors fade away into history books, the US military is losing important insights into the future operating environment characterized by GPC, even with glances into the

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[80] Biddle, 39.

[81] Bonura, 259.

[82] Congressional Research Service, *Hypersonic Weapons: Background and Issues for Congress* (Washington, DC: Congressional Research Service, 2020), 2, 11.

[83] Biddle, 49-50.

rearview mirror of history. The forthcoming senior leadership is going to be those with experience in counterinsurgency warfare. American civil leadership is also being replaced by those who vaguely remember the omnipresent shadow of nuclear war. Civil and military leadership must work together to develop a policy to balance deterrence, offensive and defensive operation capabilities in relation to the international environment. Ultimately, that decision is determined by civil leadership. Military advice would be wise to consider that implication of the environment it creates through its doctrine and capabilities. JADO offers an opportunity to accomplish each mission set well, but its capabilities should not be overstated. MD will play an important role in developing a system that tends towards the antifragile.

Air Defense in the 21st Century

Can needed flexibility be found within the AMD 2028 construct? The current and emerging AMD threat is diverse. Taleb's theory argues that this is not necessarily a bad thing. Being "continuously under pressure to stay fit" incentivizes systems to adapt, change, and learn.[84] However, the rate and cost of missile technologies in concert with two decades of FDO and FRO missions carry a high cost for AMD forces adapting to emergent threats. The current AMD paradigm has its roots in the Second World War based on German missile technology. Allies overcame these threats by using integrated networks and multi-domains to centralize efforts and achieve effects. The contagion of air and missile threats is challenging this paradigm. This section explores MD's past and future roles in the operational environment.

Dealing with Emergent Air Threats in World War II

AMD is an integral enforcement mechanism of US policy and the American way of war.[85] It supports three critical defense functions: (1) deterrence against threats to the United

[84] Taleb, 105.

[85] Kenneth P. Werrell, *Archie to SAM: A Short History of Ground-Based Air Defense* (Maxwell Air Force Base, AL: Air University Press, 2005), 182.

States and its allies, (2) protection using early warning and active defense should deterrence fail, and (3) the ability to support offensive and defensive transregional military operations.[86] These missions focus on *defending* assets from air attacks, playing an important role in setting the strategic and operational tempo while preserving combat power. Yet, this role is undervalued. Kenneth P. Werrell provides three insightful reasons why ground-based missile defense is often neglected in military and policy circles. First, its primary source material is, at best, fragmented.[87] Second, it lacks the "sex appeal" of its offensive air-to-air platform counterparts, which move at high-speed and perform incredible aerial acrobatics feats.[88] At Patriot's debut in Desert Storm, it was referred to as a dumpster on wheels.[89] Finally, and most importantly, Americans have little experience relying on air defense weapons.[90] Britain, on the other hand, does. Their experience during the Second World War offers keen insights into air defense's utility and shortcomings when Hitler unleashed the *Vertungswaffe*-1 (V-1) missiles targeting London on June 12, 1944.

The fruits from German-Soviet cooperation during the early 1930s sowed the roots of Werner von Braun's *Vertungswaffe*-1 (V-1) and *Vertungswaffe*-2 (V-2) rockets. These V-weapons provided Germany with an all-weather, air defense penetrating capability to strike targets with minimal warning. The V-1 rocket was the first modern prototype of a cruise missile. It flew at a speed of about 340 miles per hour and an altitude between 6,000 and 7,000 feet, making it vulnerable to antiaircraft artillery fire.[91] It received the nickname "buzz bomb" because of the terrific noise it made during flight. The V-2, the more sophisticated of the pair, was more

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[86] US Department of Defense, *MDR 2019,* V-VII; FM 3-01, 1-3.

[87] Werrell, xix.

[88] Werrell, xix.

[89] Frank N. Schubert and Thresa L. Kraus, *The World Wind War: United States Army in Operations Desert Shield and Desert Storm* (Washington, DC: Government Printing Office, 1995), 236.

[90] Ibid.

[91] Walter A. McDougall, *The Heavens and the Earth a Political History of the Space Age* (Baltimore: Johns Hopkins University Press, 1997), 41; Werrell, 13.

menacing. This guidance-capable missile carried a one-ton high explosive warhead with a range of 320 kilometers and traveled at speeds over 3,000 miles per hour.[92] Unlike the V-1s, these struck without warning.[93]

Hitler understood the psychological terror these weapons would have on the British population and directed the V-weapons to be deployed using a *Douhetian* framework. In 1943, as launching sites in France and Belgium were under construction, he proclaimed, "Europe and the whole world will be too small from now on to contain a war. With such weapons, humanity will be unable to endure it."[94] This was not a terrible assumption. V-1 rockets were massed against targets in the United Kingdom just six days after the D-Day invasion. Dwight Eisenhower recalls,

> The effect of the new German weapons was very noticeable upon morale. Great Britain had withstood terrific bombing experiences. But when in June the Allies landed successfully on the Normandy coast the citizens unquestionably experienced a great sense of relief, not only at the prospect of victory but in the hope of gaining some insurance against future bombings. When the new weapons began to come over London in considerable numbers their hopes were dashed.[95]

Hitler's commanders in the west, Gerd von Rundstedt and Erwin Rommel, had other thoughts on the V-weapon program. They saw the V-weapons as a critical capability to target British ports and logistics nodes, then against French ports, once the Allies landed in Normandy. Notably, they argued that using these weapons against operational targets could contain the Allied bridgeheads.[96] In his account of the V-weapons, Eisenhower agreed with their assessment. He lamented that perfection six-months earlier would have made Operation Overlord difficult, if not impossible, if the ports at Southampton and Portsmouth we attacked.[97] Fortunately, these new

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[92] Dennis Gormley, *Missile Contagion: Cruise Missile Proliferation and the Threat to International Security* (Westport, CT: Praeger Security International, 2008), 16-17.

[93] Dwight Eisenhower, *Crusade in Europe* (New York: Double Day and Company, 1948), 421.

[94] Walter Dornberger, *V-2* (New York: Viking Press, 1954), 103.

[95] Eisenhower, 423.

[96] Jean Edward Smith, *Eisenhower in War and Peace* (New York: Random House Publishing Group, 2012), 531.

[97] Eisenhower, 432.

instruments were political rather than military measures. This allowed the Allies to allocate limited airpower to the V-1 threat and focuses efforts on breaking out of the D-Day landing sites.[98]

To compare the difference between the efficacy of German missile attacks with its strategic bombing on the British psyche, it helps look at the numbers. By official estimates, German aerial bombing was responsible for producing 112,932 civilian casualties over five years of action. V-1 and V-2 missile attacks combine are responsible for 33,442 casualties, or 22% of total casualties, in under a year.[99] It was the psychologically devastating effects of the rockets that affected the population the most. One and a half million Londoners fled the city between June 1944 and March 1945.[100]

Still, the British air defenses adapted effectively to counter the V-1 attacks. Foremost, following the secretive German rocket program's discovery in early 1943, the allies quickly initiated unified action.[101] Over the next year, intelligence developed a picture of the two rocket projects resulting in an air raid of the primary research center in *Peenemünde*, a research base off Germany's Baltic coast. While losing about 40 bombers, the raid offset V-2 production and forced German rocket testing sites to Poland, a location out of the Allied bombers' operational reach.[102] As a precautionary measure against the V-1 threat, discovered in October 1943, the Allies planned and launched Operation Crossbow. From December 1943 to August of 1944, American and British air forces flew over 30,000 sorties to destroy launching sites, hitting 88 of

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[98] Adam L. Gruen, *Preemptive Defense: Allied Air Power Versus Hitler's V-Weapons, 1943-1945* (Washington, DC: Government Printing Office, 1998), 29.

[99] Werrell, 20.

[100] Ibid.

[101] Winston S. Churchill, *Closing the Ring* (London: Estate of Winston Churchill, 1951), 272.

[102] Ibid., 280.

97 detected sites; intelligence missed an additional 74 unidentified sites.[103] Allied intelligence also discounted the program's sustainability, expecting the average London citizen would experience one flying-bomb explosion per month.[104]

Finally, Allied intelligence on these programs allowed Britain to redesign its air defenses before the V-weapon attacks. The radar, barrage balloons, and integrated air and ground-based defenses that triumphed during the 1940 Battle of Britain created a three-layered defense equally up to the task of addressing the V-1 threat.[105] Radar provided early warning and target information. Early warning and coordination increased the number of opportunities pilots had to intercept missiles during fair weather and provided antiaircraft artillery greater engagement authorities during poor weather.[106] By the end of summer 1944, antiaircraft guns were downing 74% of their V-1 targets.[107]

However, the supersonic V-2 rockets proved to be impossible to defeat. Short of left-of-launch attacks against the V-2 systems, Allied forces lacked active or passive defensive capabilities to detect or intercept these attacks. Simply, the ballistic trajectory made it impossible for British radar to detect, and its speed too great to intercept. Between 1944 and 1945, Germany penetrated Britain's air defense with some 10,000 V-1 and 500 V-2 rockets.[108] This was a critical capability to contest the western Allies' strategic depth following the successful 1944 Allied invasion of France and the Luftwaffe's attrition against Allied offensive and defensive air.

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[103] Gordon A. Harrison, *Cross Channel Attack: The Official US Army History of the Operation Overlord D-Day Invasion of Normandy* (Washington, DC: Government Printing Office, 1951), 217.

[104] Ibid.

[105] Churchill, 287.

[106] Werrell, 14-15.

[107] Ibid. 19

[108] Werrell, 20; Gormley, 17; John Keegan, *Collins Atlas of World War II* (London: HarperCollins, 2006), 121.

The sum of the German weapon threat and Allied response highlights three pertinent lessons learned from the V-weapon attacks. First, missiles are challenging to counter once launched. Allies could neutralize V-2 missiles before launch, but afterward, no technology existed to respond. Furthermore, camouflaged and harden facilities assured V-weapon sites' survivability and presented both military commanders and the British government with serious dilemmas following their successful D-Day landings in France.[109] While Eisenhower and Churchill agreed not to divert troops to the V-weapon mission, the rocket attacks had psychological effects on morale, infecting both Allied troops in France and the British population.[110] Second, while it is easy to adapt in stride, forethought into emergent threats makes adaptation much smoother when under duress. The V-weapons taxed British homeland defenses. However, developments in radar technologies, barrage balloons, and improvements in fighter aircraft and antiaircraft artillery coordination made London's defenses tenable. Early exposure to the threat, even with circumstantial evidence, provided time to redesign defenses and air control procedures. Finally, military planners began to see the usefulness of missiles to disrupt key terrain or capabilities with relative impunity. While airplanes were capable of deep penetrations into an adversary's strategic rear area, missiles offered similar capabilities at a much lower cost. The German rocket attacks turned out to be too little too late. However, had Hitler adjusted his targets from cities to operational objectives, the war in Europe may have been prolonged.

Theory and technology constantly evolve, introducing novel threats and risks into warfighting. The First World War introduced air as a wartime domain. However, World War II established its large-scale operationalization, enabled by theoretical and technological developments. Doctrinally, the air domain provided the ability to combine physical destruction

[109] Carlo D'Este, *Decision in Normandy* (New York: Diversion Books, 1983), 430.

[110] Eisenhower, 423.

and mobility.[111] Nearly four years of trench warfare during the Great War alone made their airpower theory appealing, advocating airpower would always get through.[112] Strategic bombing, as advocated by Giulio Douhet, Billy Mitchell, and Hugh Trenchard, promoted an air force capable of bypassing an adversary's ground forces, defeating its air forces, and delivering a decisive knock-out blow.[113] While, to an extent, airpower did get through, German rocketry introduced a novel approach. Technological improvements produced multiple-engine aircraft with sheet metal fuselages, cantilever wings, and enclosed cockpits.[114] It also included improved life-support and high-tech instrumentation that allowed operations at higher altitudes.[115]

Over the next five decades, the US Army would lead the research, development, and acquisition process for anti-ballistic missile research as it competed with the Soviet Union to fulfill its three critical defense functions. It also expanded its interests into the space and cyberspace domains to do so. By Operation Desert Storm, the US Army became the top DoD consumer of space-based capabilities, from GPS, intelligence, and early ballistic missile launch warning. This emergence of technologies brought new capabilities along with new risks and vulnerabilities. However, the collapse of the Soviet Union created several dilemmas for the US Army, particularly its missile defense. Dominating these conversations were discussions of the required force size and organization as the threat shifted from the Red Army to failing states with ambitious dictators. While US Army AMD remained an important capability in posturing against these emerging threats, the regimes posed a different risk to US interests.

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[111] Williamson Murray, "Strategic Bombing: The British, American, and German Experiences," in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millet (New York: Cambridge University Press, 1996), 96.

[112] William C. Martel, *Victory in War: Foundations of Modern Strategy*, 2nd ed. (New York: Cambridge University Press, 2011), 141.

[113] Ibid., 122

[114] Larry Addington, *The Patterns of War Since the Eighteenth Century* (Bloomington, IN: Indiana University Press, 1994), 189.

[115] Ibid.

A Fragile US Army AMD Shield

Throughout the last seventy years, the United States has exerted national power globally without escalating a conflict across the nuclear threshold. However, some relics that kept the Cold War from turning hot have decayed or were relegated to history. An antifragile system should evolve with the times. With the political rhetoric of returning to GPC, perhaps it is time to revisit Cold War policies and systems.

When the Cold War ended, one of MD's most comprehensive programs fell to the wayside: the Strategic Defense Initiative (SDI). President Ronald Regan's initiative was to advocate a change to a US nuclear deterrence policy he never favored. He wanted something more out of deterrence than the threat of instantaneous nuclear retaliation.[116] In 1983, he issued National Security Directive 85, calling on the scientific and military communities to develop a system to eliminate the ballistic missile threat.[117] The system he envisioned could see a missile launch from anywhere in the world with a space-based tracking system and neutralize that missile with either kinetic or directed energy weapons, also in space. Critics said the program relied on technology still decades away. Realists looked at its impractical price tag. Still, enough support existed, and some progress in developing infrastructure went underway. Then, the Soviet Union collapsed.

The erosion of the Soviet Union brought with it a new security environment, with the United States as a sole superpower. It also brought to light new adversaries to American interests. While conventionally weak compared to the Red Army, these adversaries possessed an arsenal of short- and medium-range ballistic missiles that could hold US regional interests hostage. The US military had to balance a political need for an expeditionary force to deter or defeat these threats despite a declining defense budget. Experience during Operation Desert Storm provided data

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[116] James Walker, Lewis Bernstein, and Sharon Lang, *Seize the High Ground: The Army in Space and Missile Defense* (Washington, DC: Government Publishing Office, 2001) 104.

[117] Walker, Bernstein, and Lang, 104.

points for dealing with these threats using low-tier missile defenses. During the multi-national task force's deployment to the Middle East in 1991, Sadaam Hussain attacked US military bases and cities in Israel and Saudi Arabia with Scud missiles. Despite later evidence, Patriot missile defenses were heralded for their military effectiveness against the Scuds. These missiles did not present the same dilemmas as a Soviet threat. Namely, the likelihood of a "rogue state" developing the capability to strike the US mainland or territories was low. Thus the impetus for SDI was rerouted to regional, now referred to as global, MD programs.

Similarly, as debates concerning the joint force's future and creating expeditionary forces and capabilities continued, the services looked for other places to reorganize and reduce investments. Historic concerns over rear-based sanctuary were a lesser worry in the post-Cold War and an easy target for reduction. Thus, both the Army and Air Force cut force protection around airbases and focused on other funding efforts.[118] In sum, SDI continued to exist in concept. However, its funding went towards creating theater-based systems to assist allies and partners in deterring emerging missile threats from Iraq, North Korea, and Iran.

These decisions created several shortfalls to US missile defenses over the long term. First was overconfidence in the abilities of its new AMD systems. For example, initial reports indicated huge Patriot operational successes. However, further analysis by MIT scholars Theodore Postol and George Lewis demonstrated its efficacy rate was between 10 and 15 percent, resulting in a congressional investigation.[119] This created a level of distrust between the US military and Congress that continues to taint missile defense today.[120] Furthermore, while US allies and partners, including Germany, Japan, Saudi Arabia, Kuwait, and Taiwan, purchased the

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[118] Alan J. Vick, Sean M. Zeigler, Julia Brackup, and John Speed Myers, *Air Base Defense: Rethinking Army and Air Force Roles and Functions* (Santa Monica, CA: RAND Corporation, 2020), 90.

[119] Gordon R. Mitchell, *Strategic Deception: Rhetoric, Science, and Politics in Missile Defense Advocacy* (East Lansing, MI: Michigan State University Press, 2000), 148-152.

[120] Nancy W. Gallagher, "Congress and Missile Defense," in *Regional Missile Defense from a Global Perspective*, ed. Catherine McArdle Keller and Peter Dombroski (Stanford, CA: Stanford University Press, 2016), 98-101.

system after Desert Storm, the lingering placebo effect has sustained momentum for DoD acquisitions of increasingly expensive, high-tech weapons despite not being battlefield tested.

A second shortfall is the interoperability between US Army AMD systems and joint service and coalition partners. Although programs such as IBCS are working to overcome these issues, it likely has a long way to go. National caveats to share information and intelligence remains a hurdle for multi-national organizations, while proprietary communication systems make data exchange problematic. The Army After Now (AAN) program that ran between 1996 and 1998 identified such vulnerabilities. Those were believed to be solvable by 2020 with mesh network technologies. Yet, technology maturation and divergent programs of record for the wars in Iraq and Afghanistan did not create the urgency required to develop patches. Nor has a reliable and secure worldwide network infrastructure for military operations been developed.

Another hurdle remains the sensitive nature of linking HD and regional MD programs, despite the US withdrawal from the 1972 Anti-Ballistic Missile (ABM) Treaty in 2002. The ABM treaty limited the number of interceptors and their capabilities the United States and the Soviet Union could deploy to defend their homeland. It did not limit what could be researched and tested. This loophole allowed the Regan administration to develop SDI during the mid-to-late 1980s. As technologies continue to converge, and the fiscal burden of developing separate systems requires much of the same inputs and data to function and must be integrated.

Fourth, there is the quality over quantity mindset responsible for creating a protection gap for critical assets. While quality made sense given limited capabilities for air attacks in the 1990s, that calculus is beginning to change. The Air Force is again concerned with protecting its airbases, a US Army AMD role and function, from increasingly lethal air and missile threats.[121] Furthermore, Russian and Chinese A2/AD systems present an asymmetric threat to projecting US forces into certain theaters. The decreasing cost of unmanned aerial systems, innovations in

[121] Vick et al., 11-23.

swarm technologies, and the proliferation of missile technologies increase the accessibility of asymmetric air and missile threats to more state and non-state actors alike. Range is still a limiting factor for some of these technologies. However, US interests abroad will require the ability to defend against the myriad of AMD threats using a combined force approach with layered defenses.

Finally, there is an unsustainable rate of Army AMD supporting GCC missions across the globe. Despite being sheltered from the force drawdowns in the early 2010s, Army AMD forces have sustained deployment at rates that negatively affect the organization's overall readiness health. As of 2019, the US Army has a pool of eight Terminal High Altitude Area Defense (THAAD) batteries and 17 active duty Patriot Battalions to conduct FDO and FRO operations abroad. These forces have a dwell time ratio of 1:1.8..[122] Redeployed Patriot troops and equipment alone take between 180 to 365 days to bring back training readiness and maintenance standards..[123] Short-range air defense (SHORAD) systems to protect maneuver elements, being grown from two to ten battalions eventually, will assist these units to achieve the mass, mix, and integration required to protect the force..[124] While this structure aligns well against the 11 active duty divisions, the US Air Force is renewing its concern for protecting airbases from missile attacks, historically an Army responsibility. Despite recent and projected increases to the US Army AMD force, Army AMD will remain at a high risk of exceeding its operational capacity..[125]

AMD 2028: Making the Old New

[122] Kyle Rempfer, "Army Looks to Ease Burden on Missile Defense Forces," *Army Times*, March 5, 2020, accessed March 23, 2021, https://www.armytimes.com/news/your-army/2020/03/05/army-looks-to-ease-burden-on-missile-defense-soldiers/.

[123] John Pendleton, US Government Accountability Office (GAO) 18-447, *Military Readiness: Analysis of Maintenance Delays Needed to Improve Availability of Patriot Equipment for Training* (Washington, DC: United States Government Accountability Office, 2018), 19-21.

[124] Vick et al., 42

[125] Ibid., 1-2; GAO 18-447, 7.

AMD 2028 and the recently updated FM 3-01, *Army Air and Missile Defense Operations*, seek to address emergent AMD threats, the changing geopolitical environment, and its associated capability gaps. Much of that is influenced by modernizing AMD's role from AirLand Battle, looking at AAN lessons, and merging those with findings to inform AMD 2028 and Army Futures Command's Project Convergence. Particularly, AAN forecasted US Army capabilities in 2010 and 2020. Both AAN and AMD 2028 are dealing with a variety of unknowns, particularly in technological maturation. AAN was an Army-led investigation looking beyond near-term budgets and focused on new structures and material for its next war.[126] Many of the study's findings are reemerging to the discussions surrounding AMD 2028.

AMD 2028 attempts to balance support for both offensive and defensive operations. As the joint service lead for land-based missile defense service, this role carries a burden of responsibilities. Its HD defense role is to defend the US homeland from ballistic missile attacks.[127] Its global MD role is to defend allies, forward-based forces, and other theater requirements against a range of both air and missile threats in a geographic commander's area of responsibility.[128] Unlike other Army branches, the US Army's AMD missions routinely span the level-of-war spectrum and include integrating effects across sister services. AMD 2028 includes four lines of effort. Of utmost relevance to JADO are the first two, "develop air and missile defense capabilities" and "build AMD capacity for multi-domain operations."[129]

AMD 2028 capabilities are focused on short-range missile defense, one of the most significant changes to the US Army AMD's efforts since the end of the Cold War.[130] It has

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[126] Robert H. Scales, *Yellow Smoke: The Future of Land Warfare for America's Military* (Lanham, MD: Rowman and Littlefield Publishers, 2003), 5.

[127] US Department of the Army, Army Training Publication (ATP) 3-27, *Army Global Ballistic Missile Defense Operations* (Washington, DC: Government Publishing Office, 2014), 1-1.

[128] US Army, FM 3-01, 4-7.

[129] US Army, *AMD 2028*, 8.

[130] US Army, FM 3-01, vii; US Army, *AMD 2028*, 9.

renewed its efforts to provide short-range missile defense capabilities to the Division and Corps. US Army AMD also maintains the ability to execute the already high-demand high-to-medium altitude air defense missions. This effort not only reemphasizes AMD's reintegration into Army divisions and corps but doing so using the IBCS. IBCS will integrate offensive and defensive fires by sharing sensor and effects data across a common network.

IBCS will also prepare the AMD force to become more organizationally scalable. Currently, proprietary communications systems have inhibited the AMD force from integrating fully. This means that soon, AMD forces can provide a scalable mix of capabilities and systems into a theater. AMD 2028 highlights the challenge associated with that task, including growing its pool of non-commissioned officers and warrant officers to operate this force.[131]

Most importantly, AMD 2028 broadens its scope beyond converging joint capabilities by including allies and partners in its effort. These entities will undoubtedly play an essential role in the next fight, especially when opening the theater for follow-on forces. This is particularly important given the limited strategic airlift capability required to quickly move the right combination of combat power to a distant location in a crisis. Having the ability to combine intelligence and firepower resources using a common system enhances how and where a task force can create windows of opportunity in an environment that will favor the adversary.

Army AMD has sought such integration through the Office of Technology Integration and Interoperability.[132] The continued focus on assuring joint service and coalition interoperability is essential to creating a common operating picture and assuring allies and partners across the levels of war.[133] As certain states develop A2/AD systems to prevent US force

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[131] US Army, *AMD 2028*, 12.

[132] Walker, Bernstein, and Lang, 223. Today this office is called the Technical Interoperability and Matrix Center and is a focal point for space and integrated air and missile defense technology integration and interoperability.

[133] K. Scott McMahon, *Pursuit of the Shield* (Lanham, MD: University of America Press, 1997), 58-59.

projection, having basing and intelligence-sharing agreements in place is paramount to deterrence, competition, and domination should events jump from crisis to conflict. Again, this shared understanding will facilitate situational awareness of friendly and enemy locations and facilitate joint offensive and defensive fires capabilities.[134]

In assessing these efforts, it is easy to find parallels between lessons from the AAN study. However, gaps such as quality over quantity and unsustainable operational tempo remain. As the military looks to JADO as a joint construction for future operations, AMD 2028 is well-posture to integrate US AMD capabilities to support the fight. While budget and technology constraints slowed its development, Army AMD forces have historically concerned themselves with interoperability with the Air Force. Future fights will require it to broaden those horizons.

The Prospects of JADO and AMD 2028: A Path Towards Antifragility?

The previous section demonstrated some capability and technology gaps in missile defense. Does thinking about JADO and AMD 2028 together create a brighter future? *JOE 2035* characterizes the future as contested norms persistent disorder.[135] While that is a fair assumption, it highlights that Army AMD must prepare for two alternative futures. The first is categorized by compellence, the coercive power to induce action, while the second is categorized by persuasion through the defense.[136] Due to the fiscal requirements and limitations, this is problematic. A Janus Cone (Figure 1) visualizes this potential future by looking to the past. It describes a past characterized by a challenge and response dynamic and increasingly oriented towards global missile defense capabilities. It also shows that these trends tend to take time to develop and evolve.

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[134] US Department of the Army, Army Space and Missile Defense Command, *TIMC: Technical Interoperability and Matrix Center Fact Sheet* (Washington, DC: Government Publishing Office, 2018), 2.

[135] US Joint Staff, *JOE 2035*, 4.

[136] Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 72.

The first future, GPC (proxy conflicts), is the most ideal given current political and military efforts. In this scenario, limited missile defense capabilities, although comprised of both mobile and stationary assets, provide the United States credibility to defend its homeland from a limited attack. It also continues to allocate mobile AMD protection to allies and partners. This future is comprised of strategic and operational missile defense systems from multiple services and nations networked together and are competitive with any adversary capabilities, incentivizing a more cooperative international atmosphere. A second alternative future is one where deterrence fails, and the military is locked into combat operations best described as a combination of third and fourth-generation warfare, comprised of peer and near peer state actors and non-state actors alike.[137] Here, the US MD must defend against an array of air threats that target critical operational and strategic targets, as well as leverage swarms of unmanned aerial systems to overwhelm and neutralize friendly tactical formations. The ability to mass an array of defensive fires is paramount to ensuring the preservation of combat power. The challenge is these futures require the prioritization of very different acquisition and organizational priorities.

[137] William S. Lind and Gregory A. Thiele, *4th Generation Warfare Handbook* (Kouvola, Finland: Castalia House, 2015), 7.

The first scenario requires larger, sophisticated systems that are prohibitive to produce in large quantities. These systems are fiscally demanding and require dedication to producing in mass. With improved integration capacities, air defense will provide both a mix and integration of air defense coverage. The second scenario requires inexpensive, rapidly produced, and recuperable technologies that leverage traditional air defense principles of mass, mix, mobility, and integration.

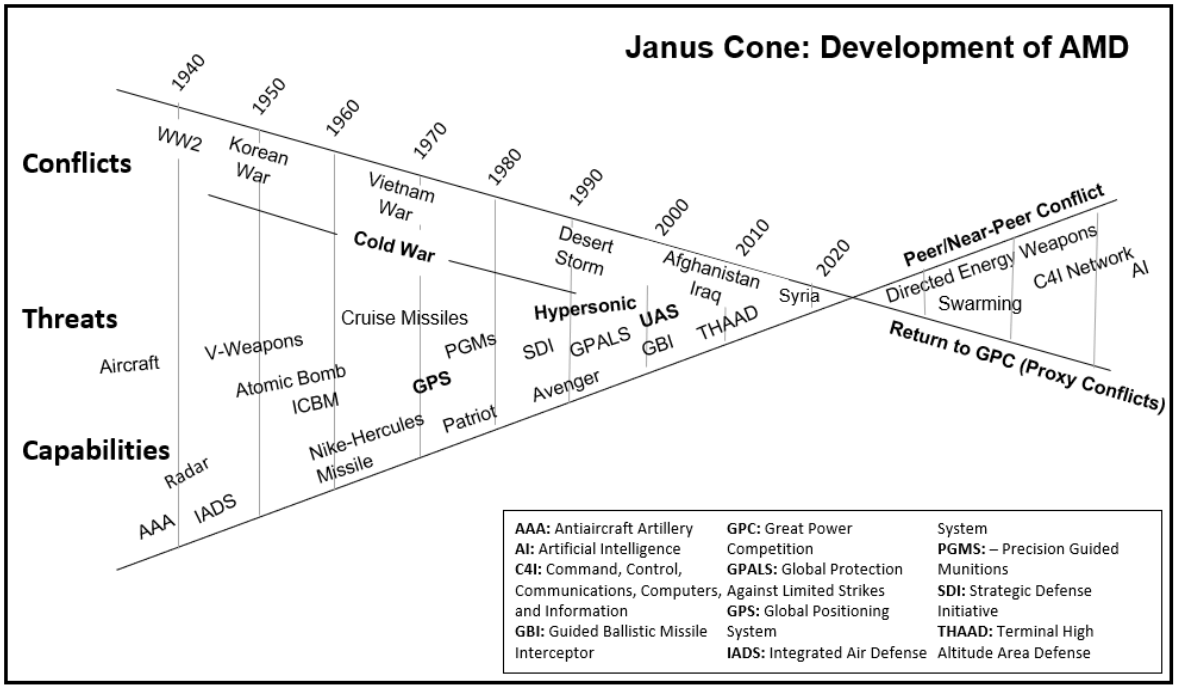

Figure 1. Development of Air and Missile Defenses: Threats and Capabilities. Created by author.

While both scenarios pose challenges, the second seems the more likely. Potential adversaries clearly understand the capabilities that made the United States dominate its adversaries over the last thirty years. As Williamson and Murray argue, "Present and future opponents and allies of the United States know what the US forces can do."[138] The pursuit of the first scenario is most aligned to the post-1945 international order. However, the character of war

[138] MacGregor Knox and Williamson Murray, "The Future Behind Us," in *The Dynamics of Military Revolution,1300-2050*, ed. Williamson Murray and MacGregor Knox (New York: Cambridge University Press, 2009), 189.

in the late 20th and early 21st century is mobile, rapid, prone to an increasing number of aerial threats, and alarmingly occurring despite nuclear weapons.

The recent conflict in Nagorno-Karabakh between Azerbaijan and Armenia demonstrates some of these trends. First, both sides limited their use of available long-range missiles.[139] While this may result from a limited quantity or technological maturation, the more likely answer is a deliberate effort to keep the conflict limited. Meanwhile, Azerbaijan's extensive use of unmanned aerial vehicles (UAV) to aid intelligence gathering and support targeting, with onboard missile kinetic strike capabilities as well as integration with ground and air assets, created havoc on critical Armenian combat power.[140] While these UAVs' effects should not be exaggerated, the most striking lesson is the requirement for a sizeable integrated short-range air defense system. UAVs are proliferating at an unprecedented rate as the technology to make and operate them is increasingly available. Efforts are underway by significant powers to counter the growing UAV threat. The problem is about achieving mass rather than quality. For the operational planner, this may be the most significant factor in protecting the force and its most critical assets.

However, JADO and AMD 2028 concepts can fulfill an important role in overcoming gaps in both future scenarios. Taleb's evaluation criteria for these concepts would be (1) it is not susceptible to a black swan event; (2) it gains strength from shocks; and (3) it affords continuous organizational learning. A US Army AMD force working within the JADO construct should deliver several capabilities that meet this evaluation criteria.

First, a networked and integrated AMD system will provide a layered defense to protect critical infrastructure and assets from attack. Intelligence-sharing agreements and future systems like IBCS provide a task network-centric approach to identify, track, classify, and neutralize

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[139] Shaan Shaikh and Wes Rumbaugh, "Air and Missile War in Nagorno-Karabakh: Lessons for the Future Strike and Defense," *Center for Strategic and International Studies*, December 8, 2020, accessed January 05, 2021, https://www.csis.org/ analysis /air-and-missile-war-nagorno-karabakh-lessons-future-strike-and-defense.

[140] Ibid.

threats. Introducing emerging technologies, such as artificial intelligence, will expedite decision-making by modifying the current kill chain structure. Modifications must also include the integration of multi-national coalition members into the kill chain structure. While not impervious to a black swan event, a network-centric approach introduces sufficient resilience to recuperate losses with alternative means.

Secondly, there is are an abundance of emerging threats and capabilities, minor shocks, to study. For example, several states are developing hypersonic technologies and maneuverable ballistic missiles. These missiles offer a redux of Hitler's V-2 rockets and realizing *Douhetian* ideas to crush the morale of the civilian population, with the ability to penetrate the most modern air defenses. Critical assets, from critical civilian infrastructure to division headquarters, will need active and passive protection from emerging missile threats. With the US tendency to prioritize quality over quantity, this is already a significant vulnerability. The prospects of increased interoperability envisioned by JADO will mitigate that threat to a degree through measures such as enhanced early warning capabilities and reengaging conversations to improve defense design through passive and active measures.

Finally, while emergent threats are developing, the urgency to defend against all of them now, or in five years, is overstating requirements. Testing is expensive, especially for hypersonic technologies. Producing them in mass will prove equally difficult to achieve in the near-term. As Figure 1 illustrates above, these technologies can sometimes take decades to mature. This timeline allows for the refinement of current systems and the development of an appropriate mesh-like IAMD network architecture. The military has time to ensure it is organizationally and materially up to the task. Working with multi-national partners will only enhance the capacity for learning about an adversary and, more importantly, partner capabilities.

Nevertheless, there are some significant shortfalls. First, an integrated and common operational picture provides situational awareness and an ability to coordinate and layer effects in time, space, and purpose. While this technology exists in the testing phase, this process can, and

should, take time to perfect. Where Iraq and Afghanistan afforded the DoD to expedite certain off-the-shelf to the warfighter, GPC affords developers and acquisitions to build a solid foundation that can adapt into the future. A quick acquisition allows quick patches, but fiscally, it will better serve the warfighter if those patches are updated rather than entirely new systems fielded.

Second, as advertised, both programs seek to integrate joint and coalition capabilities to win in future war by linking sensors and effects. There are obvious information-sharing caveats to overcome to achieve shared understanding. Additionally, this will require significant work within the DoD, allies and partner nations' defense organizations, and national and international defense contractors. If Operation Desert Storm is the paradigm, the United States must be mindful of the risks associated across the levels of war to share, or perhaps not share, information. Management of targets using scarce resources already requires significant staff work. Defensive counterair can address threats dynamically, but sustaining this fight will require significant oversight with augmentation from artificial intelligence, a foreseeable future but still decades away. These are effects that will have to be managed as crises arise, but these processes are time-consuming.

Finally, there are gaps to overcome from sustained Patriot deployments to support FDO and FRO operations and a SHORAD program. These forces remain inhibited by a twenty-plus year war on terror, uncertain funding, and, in SHORAD’s case, the subsequent reduction of ground-based missile defense for the division and corps. With the resurgent mission to provide AMD to US airbases, these resources must be grown by the Army or taken up by the Air Force. Either way, these forces will have to be allocated from somewhere. Expanding the role and number of SHORAD units, including those in the National Guard component, would increase the pool of available AMD combat power. National guard forces serve a vital role in messaging

governmental leaders and citizens alike of an escalating geopolitical situation.[141] This was an important lesson from during the Vietnam War and need not be relearned.

These futures all indicate a potentially bleak era. Yet, without volatility or competition, as Taleb warns, a system weakens and decays towards fragility. This is a common theme found during the study of war and warfare. Geoffrey Parker's explains the normative role the *challenge and response dynami*c plays in the western way of war. Empires that faced few challenges to power tend to be at a military disadvantage compared to those who faced defeat or persistent challenges to their power.[142] Systems will lean towards antifragility when it actively seeks to create their future. It will tilt towards fragility when it rests on its laurels. Therefore, a system that leans towards antifragility will be necessary as the world becomes multipolar. Military doctrine serves as an essential communication mechanism to communicate to the greater political system.[143] This is important for the United States, which maintains global interests. Emerging military operational concepts must be able to support these objectives. While there are several shortcomings with JADO and AMD 2028, there is sufficient time to investigate these issues, create agreements, and sufficiently communicate and demonstrate its usefulness to meet emergent requirements. Missile defense is again an important component of this strategy to counterbalance against emerging air and missile threats.

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[141] Conrad Crane and Gian Gentile, "Understanding the Abrams Doctrine: Myth Versus Reality," *War on the Rocks*, December, 5 2015, accessed February 15, 2021, https://warontherocks.com/2015/12/understanding-the-abrams-doctrine-myth-versus-reality/.

[142] Geoffrey Parker, *The Cambridge History of Warfare*, 2nd ed. (New York: Cambridge University Press, 2020), 6.

[143] Posen, 208.

Conclusion

For America and its way of war, a vision driven by antifragility is a worthy consideration. The post-1945 international order is built on a rules-based system under the tutelage of benign American leadership and ideologies. As G. John Ikenberry argues in *After Victory*, institutionalized norms generate power because they create predictability.[144] He refers to this as the institutional bargain. The leading state seeks to reduce the cost of compliance by restraining its potential for domination in exchange for greater cooperation and compliance from subordinate states.[145] In the post-Cold War environment, decades of US hegemony raise the risk of institutional decay and fragility unless it bends or adapts some business rules. With the rise of threats to that dominance, and forgotten lessons of compliance with the rules, America, its security apparatus, and its subsequent leadership, systems and technology must remain capable of absorbing, learning, and reacting to challenges.

Thus, the emergent security environment necessitates reexamining (1) how America sees itself in the international community; (2) how its views the role and function of international organizations and international regimes; and (3) how America wishes to assert benign versus malign influence. International organizations and regimes are useful and amenable to projecting American power, yet bureaucracies are slow to adapt. While some of this is by design, it can also be inefficient to adequately deal with rogue actors and states seeking to shirk the status quo. American military policy must strive to be antifragile to meet and support those goals.

Defense is undoubtedly the strongest form of warfare and a key position to establish a narrative and set conditions for US foreign policy. As the United States continues to conduct its warfighting abroad, it will have to rethink how it can quickly build combat power to reap the

[144] G. John Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order After Major Wars* (Princeton: Princeton University Press, 2001), xvi.

[145] Ibid., 257-258.

defense's advantages. This means overcoming organizational biases and maintaining different concepts, organizations, and technologies that can achieve suitable termination criteria and realize political objectives with its partners and allies.

The good news is the Joint Force has time to get the concept, tools, and organization right. The unfortunate news is the services do not have a history of playing well together. Military planners today wrestle with the age old-problem of hiding and finding an adversary's Achilles heel. The role of the defense is to obscure that vulnerability while the offense seeks to exploit it. However, the United States' role in the post-Cold War environment in scope and scale is unlike anything in history. Case studies on states that exceeded their means to enforce their goals are numerous. Rome and the British Empire readily come to mind. Their power tends to erode with an inability to evolve with the future. While the United States is not an empire, it is interested in retaining its benign influence globally. Yet, in the tradition of the western way of war, its military remains an offensively-minded organization with an offensively-oriented doctrine.[146]

JADO and AMD 2028 are mutually supportive concepts to meet political objectives given the emerging geopolitical environment. JADO and AMD 2028's reliance on allies and partners are their most useful leverage points. While its approach is not antifragile, it is better than robust. However, several obstacles remain. These include challenging issues like information sharing, managing targets, escalation management, particularly when nuclear-powers are involved, and changing the norm of HD and regional missile defense operations to integrate them seamlessly.

[146] Brodie, 187.

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