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**Integrating Sustainment in Wargaming:  
Posturing for Strategic Competition**

By:

John J. Harding

Lieutenant Colonel, USAF

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the author.

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**Integrating Sustainment in Wargaming:  
Posturing for Strategic Competition**

**by John J. Harding**

**Lieutenant Colonel, USAF**

**A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.**

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## **Abstract**

The DoD does not effectively employ comprehensive, sustainment-integrated wargaming to inform a data driven operational design framework that drives effective joint planning processes. The isolated nature in which wargames often assume successful sustainment and logistics support highlights this shortfall. Current DoD wargaming efforts focus primarily on evaluating the impact of kinetic effects in a static environment where logistics and sustainment factors are unverified. These assumptions degrade the ability of wargames to fully evaluate the complex system of sustainment and maneuver requirements in their simulations. This results in wargaming outcomes and analysis that, if left unverified and untested, present risk to combatant commanders as they posture forces and theaters for campaigning efforts. Now, more than ever, comprehensive wargaming, modeling and simulation design is critical to ensure effective competition with strategic competitors. Joint logistics enterprise leaders within the DoD should deliberately modernize and integrate sustainment into DoD wargaming efforts. Sustainment integration into wargaming will enable the joint force to effectively posture for competition across the globe. This endeavor should account for contested logistics considerations: great power competition demands a resilient, sustainable joint force that can conduct logistics under attack.

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## **Dedication**

This paper is dedicated to my best friend and wife, Katherine, and our incredible daughter, Mary. Katherine's support and advice has inspired me for the past 18 years of our respective Air Force careers. Mary's love, humor, and resilience as a military child inspires me. Thank you both, I love you.

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## **Introduction**

Power dynamics in the world continue to entrench a new strategic competition strategy between the United States of America and the People's Republic of China (PRC). In response, the Department of Defense (DoD) shifted its focus away from the Global War Against Terrorism (GWOT) of the last two decades. President Biden's 2022 National Security Strategy (NSS) highlights this shift. It directs the DoD to adjust its strategic direction as the United States competes with the PRC to ensure global stability within the current International Rules Based Order.<sup>1</sup> The DoD and U.S. Indo-Pacific Command (INDOPACOM) now prioritize posturing and modernizing American military forces and capabilities to effectively compete, deter, and prevail against advanced threats that require understanding of complex, whole of government considerations. The United States did not face these threats in the GWOT.

The past 20 years of wars focused on combatting terrorism and insurgency, primarily by Violent Extremist Organizations (VEOs). This environment provided the DoD with a relatively uncontested sustainment environment. As a result, U.S. forces maintained the freedom to execute the joint warfighting function of sustainment by way of largely uninterrupted supply chains, a comparatively secure basing infrastructure, and access and security of supply lines that ensured strategic sustainment and unprecedented logistical success.<sup>2</sup>

Responding to the strategic direction in the 2022 NSS, the Joint Logistics Enterprise (JLENT) shifted the main effort of its focus to the Pacific theater. In the Pacific, the sustainment challenges are apparent. With direct competition in the Indo-Pacific region with the PRC, the Joint Force recognizes a renewed requirement to account

for a contested logistics and sustainment environment in planning, preparation, and execution. JLENT leaders recognize that service components must be able to conduct logistics under attack in order to effectively sustain warfighters in the theater.<sup>3</sup> The emerging strategic environment requires an updated sustainment model or framework to support the Joint Force in the DoD's largest theater. As the DoD responds to this new landscape, it must shift to adjust its processes to ensure the sustainability of forces. The DoD seeks to develop an organized, trained, and equipped force that can compete, deter, or prevail against PRC efforts to upend international norms, rules, and institutions. One area where the DoD must adjust to compete is through the integration and inclusion of sustainment considerations across the wargaming environment.

JLENT leaders within the DoD must deliberately coordinate sustainment wargaming efforts to effectively posture the Joint Force for global competition. Sustainment wargaming efforts must account for contested logistics considerations: Great Power competition will demand a resilient, sustainable joint force capable of conducting logistics under attack. Wargaming efforts are growing rapidly across the DoD. Currently, each of the services take it upon themselves to execute sustainment focused wargames in an effort to posture for the future. The services execute wargaming to think through and prepare for the anticipated sustainment challenges. This paper recognizes that the emerging sustainment challenges brought on by strategic competition with the PRC are more similar to the challenges of WWII than the challenges of the GWOT. This paper asserts that current DoD wargaming efforts need to effectively integrate sustainment into the wargaming environment, and it seeks to present opportunities by which the wargaming community can be more effective in sustainment integration. In its

discussion, this paper will first review the current environment and highlight WWII wargaming efforts that impacted sustainment challenges. Second, this paper will define wargaming and identify the types and uses of wargames. Third, it will examine the current wargaming environment in an effort to identify potential gaps and shortcomings with respect to sustainment requirements in wargaming efforts. Next, this paper will outline benefits of sustainment inclusive wargaming to the DoD. Finally, this paper will examine areas of risk and offer potential solutions to include and integrate sustainment considerations across the DoD.

## **Chapter 1: Sustainment Challenges from Great Power Competition**

In the 2022 NSS, President Biden put forth, “We will modernize the Joint Force to be lethal, resilient, sustainable, survivable, agile, and responsive, prioritizing operational concepts and updated warfighting capabilities.”<sup>4</sup>

Prior to the release of the 2022 NSS, Congress, and President Biden approved a 2021 law directing the DoD to plan and account for the sustainment challenges inherent to Great Power Competition. Specifically, the DoD must “promote the readiness of the armed forces for their military missions in contested logistics environments.”<sup>5</sup> This highlights a national-level recognition that the sustainment challenge facing the DoD today is markedly different due to its great power competitor. Similarly, the Joint Concept for Competing states, “In strategic competition, succeeding means retaining freedom of action to pursue national interests at an acceptable risk and sustainable cost and avoiding armed conflict with adversaries.”<sup>6</sup>

In turn, each service component recognized that it must shift to a sustainment model built on competition. The U.S. Army established a new Contested Logistics Cell within the Army Futures Command. The Army created this cross-functional team (CFT) in a direct response to the recognition that the character of the sustainment warfighting function changed. General William Nelson, Deputy Commanding General of the Army Futures Command touted this effort in 2023, stating: “Contested Logistics is one of the biggest warfighting challenges we face, and this CFT is helping to ensure we tackle the challenge head on.”<sup>7</sup> Going further, General Nelson added, “The first area focuses on precision sustainment, and that really means rapid, data-driven resilient logistics that leverages advances in machine learning and Artificial Intelligence (AI). The second area

is demand reduction leveraging hybrid engines, alternative fuels, et cetera, and new materials to reduce weight and delivery times.”<sup>8</sup>

Similarly, the Department of the Navy pivoted toward Distributed Maritime Operations (DMO). DMO is the Naval component approach to win a future high-end fight at sea. As it postures for high-end competition and readiness to prevail in any high-end conflict, the Department of the Navy defines DMO as “An operations concept that leverages the principles of distribution, integration, and maneuver to mass overwhelming combat power and effects at the time and place of our choosing.” Sustainment planning and practices are critical to this concept. Naval leaders are keenly aware that the ability to perform logistics and sustainment support functions to the fleet in a contested environment is integral to the success of DMO.<sup>9</sup>

The Air Force also acknowledged the sustainment challenges inherent to Great Power Competition. Two years ago, Secretary of the Air Force Frank Kendall spoke about the inherent challenges that have arisen due to a competition strategy with near-peer countries. In doing so, Kendall stated, “In my opinion, we have not fully internalized the significance of that development or what it means for our national security... Infinite logistical capacity and freedom of movement are not guaranteed for the United States military and our government partners.”<sup>10</sup> In 2023, General C.Q. Brown, then-Chief of Staff of the USAF, directed and hosted a logistics focused tabletop exercise (TTX) at MacDill Air Force Base. Its purpose “focused on the strategic risks related to conducting logistics in contested environments.”<sup>11</sup> In running this TTX, the Air Force signaled a significant shift and pivot to face sustainment challenges inherent to U.S. competition with the PRC. General Brown reinforced this, saying “Credible military logistics

capability is a key element of integrated deterrence. . . .the Air Force must adapt quickly to the character of a modern, high-end fight, and I'm proud of how the professionals from across our logistics enterprise are pushing to accelerate change in this decisive decade."<sup>12</sup> This public acknowledgement highlights a deliberate shift to hold sustainment-focused sessions to posture the Air Force for Great Power Competition. Though it did not fully integrate sustainment factoring into comprehensive wargaming efforts, this shift highlights service recognition of the essential role of sustainment in the current competitive environment.

The U.S. Marine Corps (USMC) also drove full force to meet the challenges of sustainment from strategic competition. The USMC's "Installation and Logistics 2030" highlights, "While our (USMC) current approach — informed by decades of experience — worked well in the past, it is insufficient to meet the demands of the future operating environment, particularly when contested across all domains."<sup>13</sup> Expanding on this, the report details the emerging challenges of potential future conflict in a manner that clearly acknowledges that past practices will not be sufficient in future fights. Specifically, the report frames the problem with resounding clarity, stating "many of our assumptions about the future operating environment are being validated by the ongoing conflict in Ukraine. In short, we have witnessed a numerically superior force struggle to sustain itself and protect supply routes against persistent attack and disruption."<sup>14</sup>

As the DoD faces sustainment challenges across the globe, wargaming the current and future military sustainment posture can provide insight into the applicability of logistics posture as a deterrent to great power competitors. The DoD must modernize how it plans for and executes sustainment activities. Further, JLENT leaders must consider

strategic competition with the PRC as it modernizes and designs future joint logistics concepts. This effort must focus on and consider all joint warfighting functions and not only focus on the kinetic effect or outcome of a defined scenario or situation.

Due to the threats and capabilities the PRC presents, the DoD—now more than ever—must develop a sustainment inclusive wargaming, modeling, and simulation design. This concept is critical to ensure effective competition with our pacing adversary. JLENT leaders should deliberately integrate sustainment factors into DoD wargaming efforts. This will provide strategic leaders with a better understanding of the operational impact of contested logistics and logistics under attack. It will also empower joint force logisticians with the planning tools and data they require to train for and sustain future conflicts.

The U.S. Army in the Pacific (USARPAC) recognized this and hosted a sustainment focused wargame in the Pacific. In doing so, USARPAC leaders signaled a need to build on and inform future integrated wargames.<sup>15</sup> Notably, Maj Gen Helwig, the theater sustainment commander for USARPAC, asserted, “In a truly contested environment...we must have the right leaders, at echelon, to make tough decisions when it comes to priorities for sustainment, not just for their component, but on behalf of the entire Joint Force, based off of priorities from across the services”<sup>16</sup> USARPAC leaders recognize the importance of sustainment focus in war planning. Sustainment integration into war planning, if done properly, would provide more comprehensive, iterative, and synthesized wargames to enable the crucial strategic basing, acquisition, and force development considerations.

In reviewing National, Joint, and Service-level doctrine and actions, it is clear: the DoD is posturing a significant shift in the JLENT model of operations. Strategic competition drives requirements for change in many areas: supply chain effectiveness, supply chain resiliency, supply chain redundancy, a requirement to conduct logistics without secure bases, and the ability to sustain forces over long distances while under threat of multidomain attack. This results in a marked requirement for change to DoD sustainment to ensure that the DoD can effectively compete with and deter near-peer adversaries. This is a new requirement for today's warfighter.

The last time that the U.S. military faced such widespread contested sustainment challenges was prior to World War II. Like Great Power Competition today, the landscape in the 1920s and 1930s recognized the potential challenges that would come with conflict between peer competitors over contested, disparate distances. Each country saw the imperative for change, and each country, in its own way, turned to wargaming. Notably, the U.S. Navy utilized wargaming in the 1920s because it saw a need to evaluate and modernize its force and tactics to prepare for possible future conflict.<sup>17</sup> The remainder of this chapter will highlight U.S. Navy wargaming efforts in the interwar years.

### **Historical Examples of Contested Logistics Wargaming**

Wargaming in the interwar period showcases the importance of a clear wargaming design that fully understands and accounts for the operating environment. The Naval War College was the earliest American organization to acknowledge and meet the need for wargaming in the Pacific. In a 22-year period from 1919-1941, the Naval War College hosted 165 wargaming events focused on a potential conflict with Japan.<sup>18</sup> The

United States Navy focused on a future fight that would rely heavily on the execution of sustainment in a contested, disaggregated environment. As it shifted to this focus, Naval War College leaders chose to use wargaming to inform military planning and decision making in the period leading up to World War II.

From a joint perspective, the framework of learning with respect to sustainment and wargaming within the United States was one of varied success. Each service took its own approach to wargaming employment, and this approach caused a lack of unity of effort, and cohesion shortfalls between the services. The United States Navy built its wargaming capability at the Naval War College because it recognized the need for wargaming leading up to World War II.

In preparing its leaders, the United States Navy strove to develop planning actions with as realistic as possible simulations. As War Plan Orange (the Operational Plan for a potential fight against Japan) developed in the interwar periods, the U.S. Navy focused heavily on a potential future fight against the Japanese.<sup>19</sup> As the War College expanded its wargaming capacity, the effectiveness of the games increased as well. One area that made the War College games useful to planners was the inclusion of sustainment and logistics factors in their games. In his book, *Playing War, Wargaming and U.S.*

*Preparations for WWII*, John Lillard highlighted that at each Naval War College class, a “Big Game” was employed as the climactic event of the year. Specifically, Japan was the enemy, as denoted by War Plan Orange. In the game, “a series of maneuvers played in stages set in the same scenario, started with chart maneuvers for logistics planning,”<sup>20</sup>

In his book *On Wargaming*, Matthew Caffrey reported, “Initially, all the games assumed the American fleet would dash across the Pacific, fight, and win a big climactic

battle near Japan, and relieve the Philippines. However, as the Naval War College refined its methods, the logistical constraints on such a rapid pace became obvious.”<sup>21</sup> These lessons informed senior military and political leaders, the same leaders who updated War Plan Orange to include such logistics considerations that sustainment requirements for the development of numerous forward bases and also informed the Navy’s development of new capabilities in underway resupply of transiting ships.<sup>22</sup> In sum, the logistical considerations alone extended and informed a new timeline for the entire operation. Initially, planners had estimated that the operation would take days to weeks. Because of the inclusion of sustainment and logistics in their wargaming, the Navy acknowledged it would take years to defeat the Japanese Navy fully.<sup>23</sup>

Despite this acknowledgement of the importance of sustainment in both the planning and wargaming process, the Navy’s approach to wargaming logistics in WWII was not flawless. Logistics and sustainment oversights did occur. Most specifically, the oversights highlight a key distinction: the consideration of sustainment versus the true integration of sustainment into wargaming. Navy wargaming efforts fell short in areas where the Navy needed to fully integrate sustainment and logistics factors into the wargaming process. In his book, *U.S. Naval Logistics in the Second World War*, historian Douglas Ballantine offers insight as to why: “The development of effective logistics administration is further hampered by the fact that logistics is essentially a function of war, quite distinct from what might pass as logistics in peace. No constructive exercise in peace can quite duplicate the urgency and stringency of logistic conditions in war.”<sup>24</sup> Put differently, the tendency for leaders to assume that peacetime logistics effectiveness will transition to wartime effectiveness is dangerous. The conflation of peacetime and

wartime sustainment actions can quickly lead to assumptions that the same level of sustainment and logistics capability and support will be available in times of war. This was true for the past 20 years of GWOT. Despite these assumptions, American forces succeeded because they were operating in a strategically permissive environment. Though U.S. forces executed sustainment functions in a tactically high threat area, the operational and strategic functions of the JLENT and industrial base operated in an uncontested global environment.<sup>25</sup> In an era of strategic competition against near-peer adversaries, this will not be the case. A former Undersecretary of Defense for acquisition and logistics acknowledged this, stating that for the past generation, adversaries of the United States, “lacked the capability to target U.S. and allied forces and supplies in transit to a theater of operation, the military has conducted unobstructed deployment and resupply activities. Today, China is the “pacing threat,” ending the era of uncontested logistics.”<sup>26</sup>

The employment of contested logistics challenged Naval leaders significantly as the Navy sustained its operations in the Pacific during World War II. Numerous authors documented several causes of friction as the Navy executed contested logistics through the course of the war. Despite the Naval War College’s recognition of the importance of logistics, the Navy needed to go farther in learning and employing logistical considerations early in the war. In the work *Contested Logistics: Sustaining the Pacific War*, authors Luebke et al discovered and explained shortcomings in Naval logistics and sustainment.

First among these shortfalls was the recognition that “while sea lines of communication served as objectives for the fleet and its adversary, the wargames

assumed that the overall logistics situation would support operations rather than consider planning and logistics as precursors to operations.”<sup>27</sup> This a theme commonly acknowledged and experienced by present-day logisticians who have worked through a tenuous balance when discussing whether operations drive logistics, or logistics drive operations. At the highest levels, USMC leaders state that in a contested environment, sustainment is a pacing warfighting function.<sup>28</sup> Leaders must not treat sustainment as an enabling task to execute once the concept of operational planning is complete.

Further, Navy leaders prior to the beginning of WWII acknowledged that, “the Navy as a whole is exceedingly weak in planning. Nearly everyone is so concerned with doing the job in hand that he devotes little thought to the future.”<sup>29</sup> At its core, wargaming is part of the planning process. Effective planning processes must involve future logistics and sustainment considerations from the start and must avoid the human tendency to focus on near term problems in operational planning.

The early campaign in the Pacific showed that the Naval Officer Corps lacked relevant knowledge and experience in logistics as the Navy and Marines descended upon Guadalcanal. The effect could have been disastrous. The Navy attempts to plan and wargame fell short because they lacked a thorough appreciation for the requirement to integrate sustainment and logistics factors. Despite this shortfall, sustainment requirements remained important as the pace of battles in the Pacific did not slow down to allow the Navy time to figure out how to execute sustainment in support of operations. At Guadalcanal, the Navy and USMC experienced preventable challenges in logistics and sustainment support for the campaign. The root cause of these changes was clear: a lack of integrated logistics planning, experience, and organization in the Navy. Notably, the

first few weeks of the Guadalcanal battle resulted in marginally effective and significantly inefficient logistics support to the Marines on the island. This tenuous logistics support increased risk to mission effectiveness. Naval historians highlighted this fact, stating that “the first few weeks at Guadalcanal illustrate what happens when Navy organizational culture fails to view, or at least underappreciates, logistics as line work.”<sup>30</sup>

A key lesson here from the U.S. Navy applies to wargaming today. The omission of any one critical aspect of warfighting can have second- and third-order effects. Navy leaders experienced increased risk to mission in the areas where it failed to include sustainment wargaming considerations. This effect is evident in a logistics review of the Guadalcanal campaign.

Looking to the future, if the DoD repeats the mistakes of WWII, it could experience similar sustainment shortcomings that lead to avoidable troop and materiel losses. If the DoD fails to integrate logistics and sustainment warfighting functions in wargaming efforts, it will likely have the same effect that the Navy experienced in WWII. Going further, the current DoD sustainment and strategy challenges are more like the massive problems of WWII than the uncontested sustainment environment that the DoD operated in during the Operation Iraq Freedom (OIF) and Operating Enduring Freedom (OEF) wartime environments. In order to evaluate how to integrate sustainment into today’s wargaming environment, this paper will first provide a clear and accurate definition of the term wargaming.

## Chapter 2: Wargaming Defined: Types and Purposes of Wargames

The use of the term “wargaming” is broad and often applied liberally. *Joint Publication (JP) 5-0: Joint Planning* defines wargaming as “a primary means for COA analysis. Wargames are representations of conflict or competition in a synthetic environment, in which people make decisions and respond to the consequences of those decisions.”<sup>31</sup> Further, JP 5-0 delineates between modeling and simulation and wargaming, as it offers that modeling and simulation are tools used to assist in various aspects (records keeping, visualization tools, and adjudication assistance) of wargames.<sup>32</sup>

Despite this guidance in JP 5-0, wargaming is often a catch-all term to describe a wide array of activities. With increasing frequency by both the military and the American Press, the term ‘wargaming’ holds connotations beyond those that JP 5-0 outlines in its doctrine. In his book, *On Wargaming: How Wargames Have Shaped History and How They May Shape the Future*, Matthew Caffrey highlights the divergent, yet commonly interchangeable, use of the terms ‘modeling,’ ‘simulation,’ and ‘wargames.’ In doing so, Caffrey shares a widely held view that models are static proportional representations of the real world. Caffrey goes on to say that simulations are the result of models that extend over time. Further, Caffrey explains that a simulation game occurs when sides compete with one another within a simulation. Finally, Caffrey concludes that when a simulation game involves armed factions in conflict, it is then a wargame.<sup>33</sup>

Caffrey’s views on wargaming are particularly useful because they provide context and a recent definition of wargaming. They also take into account the recent developments and technological options available today. At the same time, Caffrey’s view aligns with historical definitions, such as those described in Peter Perla’s widely

studied book, *The Art of Wargaming*. In that work, Gary Anderson reports that Perla defines wargaming as “a warfare model or simulation whose operation does not involve the actual activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decisions made by the players representing the opposing sides.”<sup>34</sup>

Going back further, Frank McHugh, who spent 40 years at the Naval War College developing wargaming for the service, referenced the *1964 Dictionary of the United States Military Terms for Joint Usage* in his definition of wargames. In doing so, he stated, “A wargame is a simulation, in accordance with predetermined rules, data and procedures, of selected aspects of a conflict situation. It is an artificial... conflict to afford a practice field for the acquirement of skill and experience in the conduct or direction of war, and an experimental and trial ground for the testing of strategic and tactical plans.”<sup>35</sup>

In viewing wargaming through the lens of U.S. allies and partners, Graham Longley Brown provides a European/NATO view of wargaming. In doing so, Brown identified and tried to synthesize a common definition that accounts for disparate opinions on the definition of wargaming. Brown, a professional wargaming expert for the past 20 years, highlighted not just an American difficulty in establishing a definition, but also a complexity in identifying European doctrinal agreement. Going into detail on his definition of wargaming, Brown describes it as, “Adversarial and oppositional by nature, a wargame is an immersive simulation, not involving the operations of actual forces, in which the course of events shapes, and is shaped by, decision made by players.”<sup>36</sup>

The U.S. Air Force Wargaming Institute also puts forth its own definition, defining a wargame as, “a unique interactive research model using purposefully selected game participants to generate data that does not already exist in response to purposefully

developed scenarios for analysts to use in developing insights or options in response to a sponsor's problem."<sup>37</sup> The Naval Wargaming department acknowledged the inability to establish a singular definition of wargaming. Its website states, "There are a variety of definitions for a wargame."<sup>38</sup> The lack of a common definition for a wargame, while not necessarily indicative of a problem, does highlight an area in which gaps may form across the foundation of the DoD's joint wargaming environment. Absent clear, common vernacular that defines what a wargame is, the use, design, application, and implementation of wargames can diverge across services. For the purposes of this research paper, the remainder of this work will approach wargaming by discussing it through a lens that accounts for the diverging views of wargaming and considers the common factors of these views. A deliberate review of a variety of wargame definitions revealed that the Naval War College presented a baseline description of wargames that is applicable to each of the definitions previously discussed in this paper.

Notably, the Naval College's Wargaming Department offers an all-encompassing definition of wargaming. This definition cuts to the core of all other efforts, and identifies the commonly applicable purpose of a wargame: "The common thread through these and other definitions is that wargames involve PEOPLE making DECISIONS in a context of competition or CONFLICT (with themselves, other people, or their environment)."<sup>39</sup> This common definition accounts for a variety of situations wherein an entity could call its actions a wargame, and this definition will serve as the baseline definition for wargaming for this paper.

There is debate on whether an exercise with real troops constitutes a wargame, or whether an academic TTX is a wargame. For the purpose of this paper, neither of those

questions affect the thesis at hand: JLENT leaders must integrate sustainment factors into exercises and TTX efforts just as much as they should in other wargames. In the next section, a snapshot of these situations will discuss the types and uses of wargames. In doing so, it aims to identify specific wargame types that could integrate sustainment considerations into their overall wargame framework. This will help to frame the situation to examine how senior leaders might better integrate their sustainment considerations into a holistic, joint wargaming framework that will enable effective sustainment to the joint force in a competition and or actual contested environment.

### **Types and Purposes of Wargaming**

“Wargaming is as old as civilization. For the last 200 years, wargames have been preparing strategists, as well as strategies, for specific battles...Today some wargames involve over 600 participants and budgets in the millions, while others run on your phone, for free.”<sup>40</sup> With such a wide range of wargames, it is essential to broadly categorize and group wargames in order to gain a macro view of the wargaming environment. Doing so will provide an understanding of why organizations employ wargames, so that leaders can employ the correct types of wargames in order to gauge their effectiveness. Put differently, each wargame is unique, but the types of wargames available to leaders can inform them of a wide variety of information to enable data driven decision making to achieve a desired end.

Broadly categorized, the types of wargames are:

1. Described by their character—the “how” of their employment.
2. Defined by their nature—the “why” the game is being employed.

Authors characterize wargames as either manual or computer assisted when speaking about the types of wargames. Matthew Caffrey's type classification of wargames is especially useful in viewing the wargaming ecosystem. Caffrey identifies three types of wargames: constructive, live, and virtual.<sup>41</sup>

Constructive wargames do not involve live forces, and instead use pictorial or physical representations of forces in the place of those live forces. This type of wargame, Caffrey reports, is the oldest form of wargaming.<sup>42</sup> It has been around for hundreds of years and is more manual in the processing of its moves. Though often played on computer games, constructive wargames do not involve any type of computer-generated modeling and simulation as decision makers go through the game process. Live wargames, Caffrey states, are what many categorize simply as exercises.<sup>43</sup> They involve live human forces in situations that depict combat. Finally, Caffrey describes virtual wargaming as those wargames that use computer designed simulators.<sup>44</sup> Although all three types of wargames can include sustainment factors in the execution of the games, virtual wargames, and the computing power in today's technology environment enable the integration of sustainment into wargames in a way not seen before. In its findings and recommendations, this paper will discuss the opportunities of today's enhanced computing capabilities.

A wargame's design must link to its purpose. There are three common purposes for wargames: to provide education, to provide experience, or to provide analytical data.<sup>45</sup> Wargaming designers agree that the type and application of a wargame should tie directly to the requirement for that wargame: the strategic or operational challenge that drove a requirement for the wargame. At a macro level, wargames support

a wide array of strategic, operational, and tactical requirements. Peter Perla offered the below framework to educate wargaming practitioners as they view the levels of professional wargames. Figure 1 provides a clear mechanism to view and comprehend the application of a wargame.

Figure 1- Levels of Professional Wargames<sup>46</sup>

	<b>Global/Strategic</b>	<b>Theater/Operational</b>	<b>Local/Tactical</b>
<b>Primary Decision Maker</b>	National Command Authority	Commanders in Chief (Combatant Commanders)	Battle Group or Lower
<b>Goals</b>	Give Participants a better perspective, test a strategy, identify key issues, facilitate exchange of ideas.	Explore specific issues, identify strategic, operational, and logistical problems in the theater or exercise; identify areas for further study	Give participants a better perspective, compare various tactics/forces, identify critical factors and areas for further study and exercise/testing.
<b>Focus</b>	Pre-Hostilities and transition politics and force deployments, the D-Day shoot out and escalation/war termination.	Necessary/feasible force levels and employment options for accomplishing specific military missions.	Force levels and tactical deployments, weapon and sensor performance, and interrelationships among warfare areas.
<b>Primary Output</b>	Qualitative. Narratives and interpretations with little numerical data. Typically, only a single game run.	Qualitative. Narratives and interpretations, with some numerical data for more support. Typically, a small number of games run.	Balance of qualitative and quantitative results. Number of iterations may vary but tend to be higher than in other categories.

A thorough review of the doctrine and both military and civilian literature highlight additional outputs that provide further context to Figure 1. From a military standpoint, wargames of all types can:

1. Provide a method for risk identification, management, and acceptance.
2. Provide a mechanism to give a recommendation and inform the decision-making process of National Civilian and Senior Military Leaders.
3. Serve as an operational tool to model and simulate the effectiveness of courses of action and forecast potential future requirements.

4. Serve as a training tool for leaders to understand operational synchronization and command and control framework.
5. Serve as a training event (exercise) prior to execution.
6. Serve as a mechanism to explore a known problem and discuss it.

The wargaming environment provides wide and varied methods through which to inform leaders at all levels. Due to the increased reliance on wargaming discussed in Chapter 1, it is important to evaluate the effectiveness, efficiency, and organization of the DoD wargaming ecosystem. This evaluation will help to determine the level to which wargaming practitioners can and should integrate sustainment into wargames and provide a basis to improve wargaming and, in turn, military readiness for strategic competition as directed by the 2022 NSS.

### **Chapter 3: Analysis and Review of DoD Wargaming Environment**

At its core, wargaming is a broad term that describes defined events that involve people making decisions in competition or armed conflict. To fully understand the types and applications of wargaming, this chapter evaluates and reviews the current wargaming environment. After discussions with wargaming experts on the Joint Staff J7, a review of Rand and GAO reports, there is a clear and widely held acceptance of the fact that sustainment is either omitted or assumed when conducting wargames that aim to evaluate the strategic and operational implications of kinetic effects.<sup>47</sup> This chapter explores underlying reasons behind the omission of sustainment in wargaming. This chapter will also review the state of current wargaming guidance and doctrine, review the organization of the wargaming enterprise, and examine the training environment and structure in place to develop wargaming experts and practitioners within the DoD. In doing so, this chapter will provide a basis through which it can identify barriers to the successful integration of sustainment into wargaming. Finally, this chapter will highlight historical limits to the ability of wargaming systems to fully evaluate the complex system of sustainment and maneuver requirements in their simulations.

One area that may provide insight into barriers to sustainment integration in wargaming is the current DoD wargaming guidance and organizational structure. There is no organization tasked with the responsibility to wholistically evaluate the effectiveness of DoD wargaming efforts. No organization has the authority to evaluate the wargaming environment, and this degrades overall wargaming cohesion and integration. Chapter 4 will discuss some of the wargaming questions that the DoD must address.

From a guidance perspective, the CJCS put forth a focus on revitalizing the wargaming environment. Starting in 2015, the Joint Staff highlighted their recognition of the importance of wargaming in preparing for future competition or conflict with near peer strategic competitors.<sup>48</sup> Building on this, the SECDEF issued more direct guidance through a Deputy Secretary of Defense Memorandum focused on growing the wargaming environment.<sup>49</sup>

Holistically, the wargaming environment is not well suited for information sharing. This is due to both the design of wargaming organizations and the lack of strategic direction for wargaming entities. Two recent reports highlight these challenges. A 2023 Rand Corporation report stated, “In wargames, the logistics necessary to support fielded forces are frequently abstracted or ignored altogether because of their complexity and the need to ensure the manageability of game rulesets.”<sup>50</sup> While useful in highlighting the gap, the report goes on to detail a new logistics game design focused on gaming contested logistics. This acknowledgement is useful for two reasons- it affirms this paper’s assertion that wargames omit sustainment. It also provides a key reason many games omit sustainment—because sustainment factors are complex and make game play complicated.<sup>51</sup> This report calls for sustainment *focused* wargames but does not advocate for sustainment *integrated* wargames.

Because there was no mission imperative to drive the DoD to integrate sustainment into wargames, the wargaming ecosystem developed largely without including logistics. Put differently, DoD leaders assumed that uncontested logistics was a valid a valid planning assumption for the past generation. Though correct during GWOT, this assumption is no longer valid. As discussed earlier in this paper, the sustainment

challenges of today are different than the more recent challenges of GWOT. Strategic competition drove a mission imperative for contested logistics planning, and that resulted in a recent increase in logistics focused wargames.

From a functional perspective, JLENT leaders recognize the need for sustainment *focused* wargaming. As previously discussed, senior logisticians in the Army, Navy, Air Force and Marines have driven these logistics focused efforts. Each service aimed these efforts at solving a contested logistics problem set in the Pacific. However, senior leaders still have the opportunity to put forth the imperative to integrate those sustainment challenges into the operationally focused wargames that home in on the kinetic challenges of a strategic competition or near peer fight. Joint Doctrine demands that the DoD execute contested logistics, and its Joint Concept for Contested Logistics calls for “resilient, integrated logistics command and control; assured joint power projection; and sustainment for distributed operations.”<sup>52</sup> In response, JLENT leaders have an opportunity to take an important next step: building from sustainment focused wargames to the integration of sustainment into existing wargames.

There is a significant difference between sustainment focused wargaming and sustainment integrated wargaming. Sustainment focused wargames are games such as the Air Force TTX, the USMC Contested Log wargame, and the US Army’s theater-focused logistics exercise discussed in the first chapter. Each effort holds incredible value in sustainment focused wargaming. They represent an important undertaking and the first step by the JLENT to insert the sustainment warfighting function into the wargaming environment. Where these efforts end, a more effective effort can begin: the true integration of sustainment into wargames that are stressing and evaluating the other joint

warfighting functions of C2, intelligence, fires, movement and maneuver, protection, and sustainment. Integration of these functions into wargaming is essential to effective planning, and sustainment integration especially will ensure the feasibility and executability of any effort in a contested environment.

There have been valid historical reasons that have precluded the integration of sustainment into wargaming. Phillip Saban highlights this in his book *Simulating War*. Specifically, he speaks to the balance of accuracy versus simplicity, saying, “One of the biggest liabilities of wargames is that they aspire to give a multi-dimensional and composite overview of a conflict, and so cannot just focus on simulating movement, combat, or logistics in isolation.”<sup>53</sup> Saban also speaks to the difficulty that arises due to the complex interrelationships between different functions (movement, combat, logistics) as wargames are executed.

Despite this difficulty, wargame leaders can strive to balance and consider the joint sustainment functions. In the past, wargaming practitioners omitted sustainment because the information required to wargame the logistics factors of an operation overwhelmed wargamers. A root cause of this was the inability of computer systems to generate accurate and timely inputs to effectively assist wargames at the time of need.<sup>54</sup> Previously, computer models and simulation programs could not manage the amount of data required to integrate sustainment factors into wargaming. Chapter 4 will discuss how this technological constraint is changing, and how wargamers might adapt to this change.

There are several strengths to the current wargaming environment. Most notably, the DoD responded resoundingly well to the call for a return to focus on wargaming. The number of DoD and private sector organizations that conduct wargames grew

exponentially. Technologically, data integration capabilities and opportunities are greater than they have ever been in history.<sup>55</sup>

The weaknesses of the environment have come into focus, thanks to two deliberate efforts that have taken place over the previous calendar year. In 2023, the Government Accountability Office highlighted ten recommendations that it made to the DoD to enhance its wargaming efforts. Notably, the GAO recommended that:<sup>56</sup>

1. DoD assess internal and external wargaming providers.
2. DoD develop and implement a department-wide approach to sharing wargaming data.
3. SECDEF develop a lead organization to own a common operating picture for wargaming.
4. The Secretaries of the Army, Navy, Air Force and Commandant of the Marine Corps evaluate costs and benefits of developing standard wargaming education and qualifications for wargaming practitioners.

Opportunities in the environment abound. The historical requirement to balance simplicity with complexity as it pertains to the sustainment environment is changing. Previous computing capabilities prevented wargamers from integrating real DoD sustainment data into operational wargames. The assumption that it is too complex to integrate sustainment into wargaming with real and live data is no longer correct. Modeling and simulating capabilities and capacity today are more capable of tackling the inherent complexity of the data integral to the sustainment warfighting function.

The DoD recognizes the benefits of consolidating sustainment data in an accessible digital platform. This effort is an information system called ADVANA.

ADVANA is a platform currently in development that will consolidate data from “hundreds of business systems to make it discoverable, understandable, and usable for advanced analytics.... It also provides decision makers and analysts access to enterprise data and structured analytics in a scalable, reliable, and secure environment. Data sources, and integration of that data has long been impossible.”<sup>57</sup> The DoD effort for ADVANA presents an opportunity for the DoD to have access to accurate sustainment data in a forum never before possible. Through ADVANA, the assimilation of such items as fuel, repair items, fuel, aircraft availability and munition locations will now be available for integration into modern technologies that could enable sustainment integration. The gap between simplicity and complexity will continue to close as systems like ADVANA come online. This gap was the historical reason that wargamers exclude sustainment data from its games. This modern technology presents an opportunity, and Chapter 5 will provide recommendations on how to capitalize on these new developments.

In closing the analysis and evaluation of the wargaming environment, it is important to be mindful of any potential threats caused by the wargaming system. First, inaccurate conclusions due to faulty data is a threat. Commanders need the right data to ensure the accuracy of wargames. Sustainment data is significant, and the assimilation of relevant DoD and industry owned data is a such a large task that it has historically prevented the integration of sustainment into wargaming. The amount of data, and disparate sources and owners of sustainment data have proven to be a historical barrier. This created another threat: the acceptance of the status quo. Despite all of the challenges and complexity, there is a mission imperative to integrate sustainment into wargaming. In

the past generation, the threat and risk accepted by assuming or excluding sustainment in wargames was low. Again, this is a factor of the previously uncontested environment that the DoD faced in GWOT.

Second, the threat of inaction with respect to wargaming and sustainment is growing. CJCS incentives such as the Wargaming Incentive Fund (WIF) and the wargaming repository have built momentum to create an environment of learning and innovation through wargaming that is much like the interwar environment of the 1920s and 1930s. Despite these mandates, integration of sustainment consideration into wargaming still lags. This results in the continued reliance on logistics and sustainment assumptions in many wargames. These assumptions pose risk to mission and risk to force in a way that drives more danger than the DoD faced over the previous generation. As previously highlighted, fighting an uncontested sustainment fight in the GWOT provided a level of freedom that the DoD will not have in a contested logistics environment.

Third, the threat of wasted time and effort also poses challenges to the DoD wargaming environment. There are many actors, both public and private, that have answered the CJCS call to rapidly expand wargaming efforts to prepare for strategic competition. Though industry and each service branch responded, there is no lead organizational owner for wargaming. The Joint Staff J7 holds a modernization role for the joint force, “But as a staff directorate, it has no forces of its own, nor does it have teams of experienced observers schooled in joint doctrine or dedicated opposing forces (“red teams”) trained to think differently. To the extent that these assets exist, they reside for the most part in the services.”<sup>58</sup> With all of these challenges in mind, there is an increased likelihood in the probability that there will be, among other problems:

duplication of effort, gaps in proper joint integration, and gaps in adequate sustainment consideration into wargaming efforts. Further, there is no joint integrating or synchronizing organization responsible to review and evaluate wargaming efforts as the joint force undergoes modernization efforts. Finally, there is no OSD or CJCS guidance that mandates that DoD organizations utilize the wargaming repository as a method of data sharing and lessons learned for the joint force.<sup>59</sup>

In closing, the current state of wargaming in the DoD utilizes avoidable assumptions for its wargaming efforts. These sustainment assumptions, if left unverified and untested, may present unknown risk to Combatant Commanders as they posture forces and theaters for campaigning efforts. The next chapter of this paper will discuss the benefits of integrating sustainment into more wargames as it pertains to risk acknowledgement, mitigation, and acceptance.

## **Chapter 4: Benefits of Sustainment Integration into Wargaming**

This chapter asserts two main benefits of sustainment integration into wargaming. The first benefit is that sustainment integrated wargaming results in a better joint planning process by providing Combatant Commanders and other senior leaders more complete information to make doctrine, organizational, training, and planning decisions for the joint force. The second benefit of integrated wargaming is that sustainment considerations will more effectively posture a DoD force and will result in “logistics as a deterrent” to U.S. adversaries. Ultimately, these benefits enable the JLENT to align its actions with strategic guidance, support integrated deterrence through force and materiel posturing, and enable integrated planning and campaigning activities across the DoD.

At its core, the joint planning process must begin with leaders who have a thorough understanding of the strategic and operational environment. The integration of sustainment into planning and gaming directly enables this understanding. Therefore, sustainment leaders should integrate sustainment factors into wargames at every opportunity. Leaders can first look at the purpose of the wargame when considering how sustainment integration can improve wargaming. Chapter 2 of this paper identified three types of wargames: constructive, live and virtual.<sup>60</sup> Chapter 2 also highlighted three key purposes for wargames: educational, experiential, and analytic.<sup>61</sup> While each purpose is suited for different types of scenarios, it is important to note that education and experiential wargames aim to create better decision makers, while analytic wargames inform people and organizations to make better decisions.<sup>62</sup> Sustainment integration can enhance and improve all three types of wargames. Equally important, the omission of

sustainment from wargames will inhibit any wargaming event in its goal to develop better decision makers who can produce better analytical decisions.

From an educational perspective, sustainment wargaming provides the potential to foster new generations of leaders who more effectively consider and lead operations while overseeing all joint warfighting functions. A previous Commandant of the Marine Corps stated, “In the context of training, wargaming needs to be used more broadly to fill what is arguably our greatest deficiency in the training and education of leaders: practice in decision-making against a thinking enemy.”<sup>63</sup> Improved wargaming design and scope will give leaders the opportunity to practice more inclusive and encompassing situations, and drive decision making that will train leaders who are capable and can consider and account for all joint warfighting functions. This will also enable leaders to execute more effective joint planning processes.

Experientially, integration of sustainment considerations into wargaming is important for two reasons. First, leaders must gain the knowledge, understanding and experience of factoring sustainment into the operation they lead. “While logisticians are our subject matter experts, ultimately commanders are responsible for logistics.”<sup>64</sup> As sustainment integrated wargames become the standard, commanders at all levels will obtain increased knowledge and experience in commanding the joint warfighting functions before tests in combat.

Second, if wargames omit sustainment from its design, that wargame results in an increased probability of negative learning. Several wargaming experts recognized this, and stated that wargames are, “opportunities to reinforce conventional wisdom from the last war, pre-existing biases, and consensus (but perhaps incorrect) assumptions about the

adversary, as well as to once again discount crucial factors such as logistics or allies. In order to correct and prevent negative learning from wargames, this topic must also be studied.”<sup>65</sup> Simply put, servicemembers must practice how they execute in the real world. If leaders do not integrate sustainment into wargaming efforts, they experience negative learning that may result in the omission of sustainment during real world planning efforts.

Analytically, sustainment integration cuts to the core of a scenario—it helps to inform a basic understanding as to whether the scenario is executable. Wargames often examine the effectiveness of a weapon system, platform, or ordnance type. As computing technology and platforms advance and can assess the large volumes of disparate sustainment factors, sustainment in wargaming will improve the ability of leaders to analyze and act with great accuracy. This can inform such key items as base posturing, decisions on pre-positioning of equipment, and even identify inefficiencies that could inform the future organizational structure of the joint warfighting organizations in operational AORs.

“Logistics might be at the heart of strategy, but its role in deterrence is understate.”<sup>66</sup> In assessing this statement, it is important to examine the integration of sustainment into wargaming by looking at the level of war and the environment. Sustainment integration will affect the strategic, operational, and tactical echelons of wargaming in diverse ways. Strategically, the integration of sustainment across wargaming efforts could provide numerous improvements to increase the effectiveness of staff officers as they develop the planning process and evaluate the feasibility of plans and operations. From that strategic lens, integrated sustainment wargaming can: inform global force and pre-positioning posture of sustainment equities, inform the

organizational structure of the JLENT, modernize, and maximize planning processes to ensure realistic options are available to senior political and military commanders. All of these efforts will enable a credible, capable force that can deter its adversary.

Sustainment integration into wargaming can also support efforts that crosscut both the type and level of wargame. If done correctly, sustainment integration into wargaming enhances wargame outcomes to support realistic, risk-informed conclusions. More specifically, sustainment integration into wargaming can:

1. Inform global posture for basing and logistics enterprise strategy.
2. Inform organizational change: The integration of sustainment into wargaming can also drive JLENT service members to further integrate into planning the planning process. This fixes the mistake of treating logistics as a peacetime supporting entity (as discussed in the WWII case study).

From an operational lens, sustainment-integrated wargaming will inform useful and effective combatant commander decisions and messaging to senior political leaders and U.S. industry. Specifically, the integration of sustainment into operational wargaming can result in more effective and accountable acquisition strategies that are deconflicted across the services and signaled to the industrial base to ensure timely and accurate industrial base posturing to support DoD requirements. Sustainment wargaming, if integrated, can enable planning for sustainment requirements and acquisition strategies. It will help to answer such questions as:

1. How can the JLENT better signal to strategic leaders what it must acquire?
2. How can the JLENT assure senior leaders that what it wants is the right thing?

3. How does the JLENT use wargaming results to signal requirements to the industrial base?

Tactically, integrating sustainment into wargaming can result in better operational commanders. It will provide more forums for commanders and their logisticians to wargame and explore challenges caused by logistics and sustainment constraints. This will provide commanders with a better understanding of their posture, and it will create more operationally minded logisticians that can better sustain the commander's operational requirements. If done correctly, this can create a more integrated operations-sustainment mindset. This mindset will enhance the effectiveness of wargames, and in turn can lead to faster and more effective operational decision making. Where "logistics has been the greatest limiting factor in the history of warfare,"<sup>67</sup> wargaming can integrate those factors to better support operational requirements, and ultimately increase the decision-making speed to meet the speed required to win in war.

The benefit of a coordinated integration of sustainment into wargaming results in an improved operating environment that brings to bear clarity of data, capabilities and capacity in a way that accurately portrays an operational environment that a Joint Force Commander can be confident the JLENT can sustain. In doing so, it sets conditions for the DoD to capitalize on that knowledge to posture the force properly and establish a sustainable force--- this is the essence of "logistics as a deterrent." Adversaries that observe a properly postured, equipped, and sustained force will see a credible threat. When integrated into wargaming, the sustainment warfighting function sets conditions to support integrated deterrence. It eliminates unnecessary assumptions and informs a sustainable force posture. This will result in a credible, resilient sustainment force and a

more informed industrial base. A properly sustained, positioned, organized, and trained JLENT will enable an effective defense industrial base strategy. A clear and effective defense industrial base strategy is an essential aspect for integrated deterrence to any peer adversary.<sup>68</sup>

American allies also recognize these facts. In the Pacific, senior leaders in the Australian National War College highlighted the role of logistics in deterrence, stating “This is because logistics...leads strategy by making the intent to use force reality. Indeed, it is military logistics activity which truly defines a nation’s capacity to respond militarily to its challenges, and most certainly to deter adversaries – realistically – in a competitive environment.”<sup>69</sup> Logistics and sustainment are an essential part of integrated deterrence.<sup>70</sup> If JLENT senior leaders can more effectively integrate sustainment into the wargaming effort, it will further DoD integrated deterrence objectives.

## Chapter 5: Findings and Recommendations

This chapter provides findings and recommendations that enable the deliberate integration of sustainment into wargaming and the planning process to ensure the effectiveness of those processes and planning efforts. There are several opportunities for future research that can contribute to this effort. First, this chapter identifies doctrinal, organizational, and training areas for future research consideration. These areas may help to inform future sustainment strategies that would result in more effective wargaming efforts. Second, this chapter offers brief insight that highlight the fact that there are technological advancements that can begin to close the “simplicity-complexity” gap discussed earlier in this paper. These recommendations and future study opportunities aim to inform future efforts to increase the effectiveness of sustainment integration in wargaming. These recommendations can improve the overall wargaming environment and could also help to decrease risks to commanders through more effective sustainment support to operational efforts.

At the strategic level, the CJCS provides guidance to make the wargaming environment more robust. The Joint Staff executed this guidance and established the WIF and the wargaming repository. However, there is no readily apparent mechanism through which either the Joint Staff or any individual Service Component internally assesses the holistic effectiveness of wargaming efforts, nor do they document any qualitative reviews of each individual wargaming iteration. A 2021 *War on the Rocks* article highlights this issue. In the article, the authors discuss this gap and pose four pertinent questions:

1. Is the quality of existing defense wargaming sufficient?
2. Does wargaming actually work?

3. Is there enough wargaming capability and capacity to meet the department's needs?
4. What is the state of the wargaming workforce?<sup>71</sup>

Though written in 2021, no Service or DoD entity has provided an avenue to comprehensively address and answer these questions. The previously mentioned 2023 GAO report highlights that these questions remain unanswered. Gaps and seams within the wargaming community abound, yet they continue. One reason that these gaps endure is that the DoD has no single office responsible to oversee DoD wide wargaming efforts. National Defense Fellow Lt Col Gabe Arrington reported on these gaps, and advocated for a Joint Wargaming Oversight Entity that, “Should subsume the various Joint Staff directorates involved in wargaming and report to the Joint Chiefs’ Vice Chairman. The Vice Chairman’s office will prioritize... wargaming efforts by looking at future challenges and opportunities that align with decisions made by the Joint Requirements Oversight Council.”<sup>72</sup>

Specific to the JLENT, the same overarching items identified as shortfalls within the wargaming enterprise are relevant. JLENT leaders should view and consider how they can deliberately integrate their workforce, knowledge, and expertise into the wargaming environment. JLENT leaders today must learn and study the historical lessons of Naval wargaming in WWII so that they do not repeat the same mistakes. Logisticians can no longer wait to begin their planning and development of a concept of support *after* the operational planning was complete.

Organizationally, there is still no apparent or available strategy or design to organize, train, or equip wargaming entities with logistics and sustainment professionals.

Experts at the operational and strategic levels acknowledge this strategy gap, yet there are no current actions to organize the wargaming community.<sup>73</sup> The first example of this lack of organizational strategy is that each service, and the Joint Staff, employs and assigns logisticians into wargaming centers to an undefined standard. To ensure that sustainment integrated wargaming, logisticians and sustainers must deliberately manage talent to place the right people into the correct positions in service and joint wargaming centers, programs, and teams. There is no deliberate process to accomplish this. Wargaming professionals, on numerous occasions, noted that “The road to becoming a professional gamer is informal, often difficult to access, and produces games of uneven quality.”<sup>74</sup> The exact methodology and makeup of this organizational construct is an area of future research that could greatly improve the integration of sustainment into wargaming efforts.

From a training perspective, there is no enterprise approach to build a wargamer. A 2023 GAO report highlights this fact, as do wargaming experts in the USMC. Sebastian Bae, a prominent academic who designs and trains DoD organizations on wargaming, brought this gap to the forefront of both DoD and academic wargaming circles. Bae states that there is “currently no pipeline to train wargamers. Instead, wargaming talent within the Department of Defense relies on self-motivated hobbyists who find their way into wargaming positions as civilians (general schedule or contracted wargamers) or by vagaries of the military human resource processes.”<sup>75</sup>

In addition to future research, there are some quickly identifiable solutions that can begin to rectify any existing gaps and seams. The Joint Staff can develop interim guidance for design and sharing standards to ensure clarity for wargame execution and data dissemination across the Joint Force. Developing such guidance will assist in:

1. Identifying and organizing commercial efforts to synergize wargaming efforts.
2. Developing institutional and organizational design solutions, to include the development of a Joint Wargaming Center.
3. Identification of process owners for new technical solutions.
4. Identification of institutional changes required. These changes include the identification of:
  - a. Joint-level integrator to ensure sustainment integration into wargaming.
  - b. Joint level office to review the design and integration processes that manage that myriad number of wargames across DoD services and industry.

Finally, the DoD has an opportunity to establish and empower an overarching Joint Wargaming Data Process Owner. This office could lead and integrate joint efforts to effectively utilize and implement the integration of DoD-wide sustainment data from ADVANA into wargaming ecosystems. As previously stated, the technological reasons that have historically caused sustainment to be excluded from wargames are fast vanishing. Advanced computing developments enabled the creation and use of operational tools—these tools could be refined and repurposed to help integrate sustainment into the broader wargaming ecosystem.<sup>76</sup>

## **Conclusion**

Wargaming efforts over the past decade showcase an increase in popularity and importance with senior DoD leaders. As the United States military continues its transition away from small, regionally focused wars, it must shift its focus to the more global problem set demanded by the National Security Strategy. Strategic competition with the PRC requires a comprehensive shift in how the military will provide sustainment to warfighters across vast distances at time of need. The previously uncontested supply chain conditioned a generation of warfighters who could assume that logistics and sustainment support will always be there at time of need. These assumptions are no longer valid. Sustainment planning requires continuous review and validation in today's world of strategic competition.

Strategic leaders across all services in the DoD are driving an imperative to adjust, modernize, and protect sustainment processes in response to the demands of the 2022 National Security Strategy. Likewise, the Chairman of the Joint Chiefs of Staff directed an increased focus toward wargaming in order to fully identify the problems, challenges, gaps, and bottlenecks in DoD capability and capacity to deter, compete, and, if necessary, defeat near peer adversaries. Sustainment modernization and the development of key technologies, tactics, ally, and partner sharing capabilities will be a pacing factor for all forces as the DoD undergoes this shift. If the JLENT does not accurately measure and plan for the sustainment of these forces, logistics will be a limiting factor. This will inhibit any military effort to deter, compete, and win against near peer adversaries.

Senior sustainment leaders across the JLENT are shifting the strategic logistics and sustainment focus and effort to account for contested logistics considerations. This acknowledgement that, at all levels, logistics and sustainment can come under both kinetic and non-kinetic attack, is a fundamental shift. Each of the services are still developing plans and strategies in their efforts to fully comprehend and adjust to this complex environment.<sup>77</sup> JLENT leaders have an opportunity to build generations of junior leaders and servicemembers who have the capability, capacity, and proficiency to provide essential sustainment support to joint warfighters competing across the globe.

This is a challenging task for the sustainment community. To effectively drive this change in a timely manner, the sustainment enterprise must ensure accurate, data driven decisions are available to inform strategic, operational, and tactical level decision making. This will support DoD efforts to build the resiliency it needs in today's competitive environment.<sup>78</sup> If the JLENT seeks deliberate inclusion and deeper involvement in both service and joint wargaming efforts, it can enable correct planning data and test current system logistics data alongside the other joint wargaming functions.

JLENT leaders have an opportunity to deliberately integrate its sustainment-focused wargaming efforts into the greater wargaming framework. This will improve DoD effectiveness for the strategic competition that the NSS calls the force to execute. In doing so, the JLENT can test itself in a timely and accurate manner, inform an appropriate global logistics and sustainment posture, and inform the defense industrial base.<sup>79</sup> The historical reasons that caused the omission of sustainment from wargaming are disappearing, and the mission imperative to integrate sustainment into wargaming is

clear. The DoD can no longer assume away its logistics and sustainment factors when conducting wargames.

## End Notes

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- <sup>12</sup> USAF Public Affairs, “Air Force Senior Leaders Hold Contested Logistics Table-Top Exercise.”
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<sup>36</sup> Graham Longley-Brown and John Curry, *Successful Professional Wargames* (North Carolina: Lulu Publishing, 2019). Page 46.

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<sup>48</sup> Cary B. Russell, “Defense Analysis: Additional Actions Could Enhance DoD’s Wargaming Efforts,” Report to the Committee on Armed Services, House of Representatives, US Government Accountability Office Reports (Washington, DC, 2023). Page 2.

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<sup>59</sup> John Harding, “Wargaming,” November 21, 2023. Email correspondence with members of the JS Wargaming Division have highlighted that the Wargaming Repository is mandatory for all games that utilize the WIF. However, J7 reps have reported that any game that is not funded by, with, or through the WIF is not required to provide game inputs/information into the Wargaming Repository.

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