

# BATTLESPACE JOURNAL

Winter 2022



Volume 2022-1



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## A WHOLE-OF-GOVERNMENT RESPONSE TO THE CHINESE BELT AND ROAD INITIATIVE

BY CAPT JOEL SCHOFFER, USN; COL DEREK SALMI, USAF; LT COL DOUGLAS KABEL, USAF;  
AND MGYSGT DONI MIYASAKI, USMC

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## DISMANTLING THE CLAUSEWITZIAN TRINITY: HOW CHINA IS ERODING THE MEANS AND WILL OF THE UNITED STATES TO PUNCH BACK

LT COL PHIL GARITO, USAF; LTC COLIN GREATA, USA; CDR MICHAEL BELL, USCG;  
AND LCDR TRAVIS MILLER, USN

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## DIRECTOR'S COMMENTS

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Welcome to the 2nd issue of the Battlespace Journal (BSJ). We've worked hard over the last year to bring the joint warfighter relevant and thought-provoking articles. The articles you see in this edition of the BSJ have already been published online the six months prior. The intent is to get information out to the warfighter in as many forms as possible. Information is the key to interoperability. Unfortunately, the necessary institutional stovepipes that help each Service component develop functional expertise are a hindrance to collaborative, integrated effort across the Services. At ALSA, we attempt to bridge this gap with information. Most notably, we achieve this mission by publishing several multi-Service tactics, techniques, and procedures manuals to coordinate cross-Service efforts. Our multimedia outreach efforts, however, are equally important.

Generally, we like to focus articles in the BSJ toward operational and tactical issues arising in the force. Although this area of battlefield operations is ALSA's primary focus, we recognize the importance of understanding the strategic picture that informs operations and tactics. As such, and in light of the new DOD focus on strategic competition with China, we have included two articles that help illuminate the challenges the United States is facing with China's global prolifer-

ation of interests. Accompanying these two articles is a "Blast From the Past" article that highlights US Army and US Air Force efforts to face a similar crisis point in the late 1970s. The result of the multi-Service effort to deal with the Soviet threat to central Europe was a new doctrinal concept of AirLand Battle. As China expands its global influence and capabilities in space and cyber, the United States may be reaching another strategic crisis point that will require similar multi-Service cooperation to develop a way ahead.

In addition to our references to strategic competition, this issue focuses on innovation in the field. With articles that explore shortening the kill chain, the intricacies of counterfire, and the disaggregation of command and control, the team at ALSA hopes to spread ideas around the force. After all, a problem faced in one combatant command may have a solution that applies equally well in another.

In closing, while we hope you find value in the articles we present, we also hope that you see a problem that needs highlighting. Your voice matters, and the BSJ is the place that can help get your viewpoint out to the joint force. Please consider writing an article. Information for submission is included on Page 2 and in the back of this journal.



AARON W. CLARK, Colonel, USAF

Director



IAN S. BENNETT, Colonel, USA

Deputy Director

### **Congratulations to the ALSA team!**

- LTC Colin Greata on a successful stint at ALSA and on taking command of the Fort Eustis Army Support Activity.
- Lt Col Bill McTernan on his retirement from the USAF after 28 years!
- Mrs. Cheryl Parris on her retirement after 39 years of Civil Service and 27 years with the ALSA team.



Defense Secretary Dr. Mark T. Esper, Secretary of State Mike Pompeo, Indian Defense Minister Rajnath Singh, and Indian External Affairs Minister Dr. S. Jaishankar participate in a press event after the U.S.-India 2+2 Ministerial in New Delhi, India, October 27, 2020. (Photo by: Lisa Ferdinando, DoD)

**By CAPT Joel Schofer, USN; Col Derek Salmi, USAF; Lt Col Douglas Kabel, USAF; and MGySgt Doni Miyasaki, USMC**

In the fall of 2013, Chinese President Xi Jinping used the backdrop of state visits to neighboring Kazakhstan and Indonesia to unveil a bold and sweeping foreign policy initiative. Officially termed “The Silk Road Economic Belt and 21st Century Maritime Silk Road Development Strategy,” and now known simply as the “Belt and Road Initiative” (BRI), this massive plan calls for approximately \$1 trillion in investments for various projects throughout Asia, the Middle East, Africa, and Europe in a bid to reinvigorate the land and sea trading routes that historically connected the East and West.<sup>1</sup>

The BRI includes five major priorities: (1) policy coordination; (2) infrastructure connectivity; (3) unimpeded trade; (4) financial integration; and (5) connecting people.<sup>2</sup> Much of the plan’s focus to date has centered on developing critical infrastructures such as highways, railways, deepwater ports, airports, fiber optic lines, real estate, and the mining and production of valuable natural resources.<sup>3</sup> As of

early 2021, nearly 140 countries are participating in the BRI, either through active projects or negotiated memorandums of intent. Some analysts calculate the project’s effects extending to nearly 60% of the world’s population and approximately 35% of the global economy.<sup>4</sup>

The BRI has been described by some critics as “debt-trap diplomacy.” Under this approach, once countries agree to BRI projects, the Chinese government offers loans that, in several instances, exceeds the nation’s ability to pay. This significant increase in debt subsequently forces other concessions, such as the trading of valuable resources in return for fiscal relief, ultimately increasing their overall dependence on China. For example, after Sri Lanka found itself unable to pay its debts, state-owned China Merchants Port Holdings leased its Hambantota Port for 99 years.<sup>5</sup>

The BRI now occupies a central role in China’s expansive global ambitions. In 2017, the 19th Chinese Communist Party National Congress added the BRI to the Chinese constitution, firmly enshrining President Jinping’s signature program in the fu-

ture policy designs of the Chinese nation.<sup>6</sup> The successful culmination of BRI projects is planned for 2049 to coincide with the centennial of China's Communist Revolution, the country's "great rejuvenation" celebration. President Jinping's BRI pledge, although tempered by the COVID-19 pandemic, is intended to lead China past the United States (US) as the world's leading economy.<sup>7</sup>

These collective actions have understandably caught the attention of the global audience and, in particular, the United States. The challenge facing any hegemonic power like the US is how to treat a rising power like China, which threatens to displace its central position of global leadership, without triggering armed conflict. Harvard historian Graham Allison coined this challenge the "Thucydides Trap," stemming from the study of the Peloponnesian War. He noted that 12 of the previous 16 historical instances that were similar to the current Sino-US relationship have resulted in armed conflict.<sup>8</sup>

The US response to China's BRI might serve as the first—and best—litmus test for how both nations might manage the shifting geostrategic relationship. To achieve its strategic objectives, the US will need to bring to bear the full weight of its instruments of national power. This paper will assess US challenges and opportunities concerning the BRI through a strategic lens consisting of the diplomatic, informational, military, and economic (DIME) instruments of power. It will deliver key decision makers an array of options to consider as the US seeks to address the BRI.

## **DIPLOMATIC INSTRUMENT OF POWER**

Diplomacy is "the established method of influencing the decisions and behaviors of foreign governments and peoples through dialogue, negotiation, and other measures short of war or violence."<sup>9</sup> It occurs primarily in the "competition" portion of the competition continuum (cooperation, competition below armed conflict, and armed conflict) and consists of four pillars - security, prosperity, democracy, and development. Diplomacy is the primary instrument of power applied when working toward a peaceful resolution of differences between nation states. China, however, is utilizing the BRI's "debt-trap diplomacy" to gain diplomatic leverage over other countries and as a disruptive force among its competitors.

Thus far, the US response to the BRI has evolved from the ad hoc policies present during the Obama administration to a more holistic, yet uneven, approach under the Trump administration. The US has yet to address the BRI through a systematic and well-resourced effort that seeks to: shape it where possible, compete when required, and offer other nations an alternative vision.<sup>10</sup> As of February 2021, the new Biden administration had not released a formal policy or strategy specifically addressing the BRI, with President Biden instead simply stating, "China should expect extreme competition from the United States."<sup>11</sup>

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To effectively meet the President Biden's intent to counter the BRI, the US must design a comprehensive, whole-of-government (WOG) diplomatic campaign. A concerted and coordinated effort, led by the Department of State (DOS), would allow the US to leverage its allies and partners to unify the regions of the world affected by the BRI. This effort would help all nations prosper and avoid the adverse consequences of allowing their nations to be a part of the BRI.

One significant problem, however, is that US diplomacy has long been underfunded. The overall budget for foreign affairs is only approximately 1% of the total federal budget. In comparison, the Department of Defense receives 16% of the federal budget.<sup>12</sup> The US spends more on diplomacy and foreign aid than any other country. But, as a more effective measure, it should be examined as a percentage of gross domestic product (GDP). In reality, the US only devotes approximately 0.2% of its GDP compared to other leading countries that spend in the 0.5-0.7% range.<sup>13</sup> To set a clear example to the international community, the US should strive to match that higher spending percentage to further cement its position as the world leader in fostering diplomatic initiatives rather than military actions to further its national security aims.



Tareq Muhammad, consulate general for Bangladesh views pallets of COVID-19 aid supplies provided by the United States Agency for International Development at Travis Air Force Base, CA, June 8, 2021. (Photo by: Heide Couch, USAF)

There is another component of diplomacy that the US often lacks... *patience*. As the world is learning during the COVID-19 pandemic, addressing global problems often takes time and there are rarely, if ever, any overnight successes. Over the last few decades, US diplomacy has been increasingly shaped by the news cycle, election politics, and even presidential tweets. This prioritizes short-term wins, not proactive long-term engagement leading to sustainable achievement.<sup>14</sup>

The goal of international diplomacy is to reach mutually acceptable solutions to common challenges facing nations in a peaceful, civil manner. Diplomacy should be the primary instrument of power applied to the Chinese BRI. It is only through increased investment in and application of DOS led diplomacy that the US can “shape and sustain a peaceful, prosperous, just, and democratic world and foster conditions for stability and progress for the benefit of the American people and people everywhere.”<sup>15</sup>

### **INFORMATIONAL INSTRUMENT OF POWER**

As the US considers options to counter the BRI, the informational instrument of power may

represent the greatest area of opportunity. In the cases of Africa, Asia, and Central and Eastern Europe, the US may achieve positive results simply due to those regions’ historical neglect. Before the official creation of US Africa Command in 2007, information operations were disconnected, subsumed under other higher priorities, or an afterthought.<sup>16</sup> Asia and more pointedly Central and Eastern Europe, especially those nations within the former Warsaw Pact, were the primary focus of US Information Agency (USIA) efforts and its immensely effective Radio Free America broadcasts.<sup>17</sup> Those broadcasts ceased with the collapse of the Berlin Wall, and USIA was subsequently shuttered in 1999 after nearly a half-century of operations, its responsibilities split among other federal agencies.<sup>18</sup>

This action, coupled with a series of other small but similarly disconnected steps, lent weight to the 2017 National Security Strategy’s (NSS) assessment that information statecraft has been “tepid, fragmented, and lacking a sustained focus.”<sup>19</sup> Part of this critique stems from the difficulty in defining what the information element fully encompasses. The Reagan administration defined information power as

“the use of informational content and the technologies and capabilities that enable the exchange of that content, used globally to influence the social, political, economic, or military behavior of human beings, whether one or one billion, in the support of national security objectives.”<sup>20</sup> Both the 2018 National Cyber Security Strategy and NSS built upon this framework and offer a solid playbook to re-invigorate the information element of power, particularly as it relates to the BRI.<sup>21</sup> Priorities should include driving effective communication, activating local networks, and divesting legacy platforms in favor of modern and innovative methods of messaging.<sup>22</sup>

Given this background, China’s BRI offers several opportunities for the US to engage effectively in the information sphere, beginning with communication about both the perceived as well as actual nature of China’s investments. Although China has asserted from the BRI’s inception that the project’s primary goal is “to enhance regional connectivity and embrace a brighter future,” this rhetoric masks darker, more predatory aspects of its early implementation that the US should leverage in information campaigns.<sup>23</sup> As previously described, several nations have been saddled with crippling debts as a result of the BRI’s “debt-trap diploma-

cy.” The East African nation of Djibouti was forced to cede control of a BRI-funded container terminal after incurring costs equal to 88% of its annual GDP.<sup>24</sup> Similarly, Pakistan—one of the earliest and strongest BRI acolytes—was forced to seek a \$6 billion bailout from the International Monetary Fund (IMF) following extensive BRI-related infrastructure overruns.<sup>25</sup>

Through thoughtful and effective information operations, the US can expose the darker elements of the BRI, including “debt-trap diplomacy” and the dual civil and military use that China mandates for many of these infrastructure investments. As Daniel Kliman suggests, the US should leverage artificial intelligence-powered sentiment analysis of news, social media, and embassy reporting to develop a database demonstrating the growing disillusionment by countries involved in the BRI.<sup>26</sup> In doing so, however, it would be wise to follow Africa-expert Caleb Slayton’s advice to use local networks and outlets whenever possible to maximize the credibility of the overall message.<sup>27</sup>

An alternative course of action would be for the US to avoid the negative elements of the BRI, and instead focus on the inherent difficulties associ-



Lt. Gen. Stephen G. Fogarty, commander of US Army Cyber Command (second from left) leads discussion of concepts, initiatives and requirements in the evolution of information advantage (IA) in competition and conflict, during the ARCYBER Information Advantage Summit at Fort Gordon, GA, September 21, 2021. (Photo by: Joe McClammy)

ated with large-scale infrastructure projects, especially in the COVID-19 business environment. By utilizing a fact-based approach across a myriad of information platforms, including both traditional methods of communication like speeches, press releases, and conferences as well as less traditional methods of communication like social media, the US can amplify its messaging and sow doubt about China's reliability and desirability as a long-term partner.

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**Another element of the BRI that the US should focus on is China's Digital Silk Road, one that is embedded in the BRI and complementary to the land and maritime routes.**

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Another element of the BRI that the US should focus on is China's Digital Silk Road, one that is embedded in the BRI and complementary to the land and maritime routes. Greece's Port of Piraeus, for example, is managed by the Chinese state-owned logistics company COSCO Shipping that recently contracted its technology support and services with fellow Chinese super-company Huawei.<sup>28</sup> Many analysts note that the expanding digital network of the BRI will provide China a global trade advantage and potentially allow China to export domestic "elements of its digital surveillance regime" to unsuspecting countries.<sup>29</sup>

The US, in concert with other like-minded nations, can offer an alternative infrastructure plan and an alternative narrative. Furthermore, its information statecraft would be well served by highlighting both the troublesome aspects of Chinese policy and its commitment to liberal values. The US should tout its enduring commitment to a free and open internet as well as other means of free speech and communication, a policy that serves as the bedrock for the information instrument of power. Additionally, it should advertise related success stories, such as the US-based consulting group that advised the Malaysian government on technical elements of its port deal with China; in doing so, over \$6 billion in savings were achieved.<sup>30</sup>

Finally, and perhaps most importantly for the information instrument of power to achieve its greatest impact, it must be successfully integrated with the

other elements of national power. It is unlikely that the US will ever develop a "Department of Information" because the concept is antithetical to the nation's core values and beliefs of liberty and freedom.<sup>31</sup> As such, the functions of information must be seamlessly integrated into the diplomatic, military, and economic instruments to provide greater synergistic effects. Such an approach offers the greatest return on investment in advancing US strategic objectives while addressing the BRI.

## **MILITARY INSTRUMENT OF POWER**

The BRI is one example of how near-peers are competing with the US by employing other instruments of power to facilitate and improve future capabilities for the Chinese military. The history of US military engagement in the regions affected by the BRI, as well as the current engagement strategies, have set the conditions for Chinese success. US military engagement in the BRI regions has been sporadic and has taken the form of a one-sided push for US interests with only notional support for local people and culture due to lack of integration with other instruments of power. Future US military strategy must be fully integrated with all instruments of power to reduce the likelihood that the BRI will challenge the post-WWII world order. This integration of all instruments of power also needs to effectively mitigate China's ability to employ the BRI's geostrategic locations and access to resource against the US and its allies in future military actions.<sup>32</sup>

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**Future US military strategy must be fully integrated with all instruments of power to reduce the likelihood that the BRI will challenge the post-WWII world order.**

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From the first six frigates authorized by Congress on March 10, 1794, to our current forward presence, the US military instrument of national power has been engaged around the world.<sup>33</sup> The operational environment of Africa, Central Europe, and South Asia have all been shaped by this engagement. The recent shift in our National Defense Strategy (NDS), away from a focus on violent extremist organizations (VEOs) to near-peer competitors, is necessary and long overdue.



James Crabtree, Executive Director, International Institute for Strategic Studies (IISS) - Asia moderates a question and answer session with Secretary of Defense Lloyd J. Austin III after delivering remarks at the 40th IISS Fullerton Lecture in Singapore, July 27, 2021. (Photo by: Chad McNeeley, DOD)

US military history is replete with hundreds of instances of armed intervention by US forces in global conflicts spanning the full spectrum of war. Of those many engagements, only 11 were part of a declaration of war against a foreign nation. Most of the actions before WWII were Naval or Marine actions to protect US citizens or to promote US interests.<sup>34</sup> Many of the activities since WWII have placed the US in the role of “world police” in a stated effort to protect the homeland from attack or to protect citizens of other nations from each other to ensure stability. This stability is seen as the underpinning of the post-WWII world order, from which the US and its allies benefit.

The focus and corresponding transition to great power competition articulated in key US national security strategy guidance offer new opportunities for the American military.<sup>35,36</sup> If properly implemented by the WOG, the US can move from the role of world police to that of world underwriter. Properly understood, the other instruments of US power would lead efforts through an influx of financial support for the DOS, US Agency for International

Development, and other agencies. The US military would move to a supporting role providing training, logistical, and management support for the other instruments of power as well as for vetted and aligned non-governmental organizations. A shift in operational and tactical actions in Africa, Central Europe, and South Asia could move US military actions from the forefront of US instruments of power application to the background. The importance of this shift cannot be understated and has the potential to move US foreign policy into alignment with its grand strategy, as articulated in the Preamble of the Constitution. The first US flag that citizens of the developing world see should be on food crates or other aid rather than on soldiers.

Despite the guidance from the NSS and NDS, US military combatant commands (CCMDs) continue to include a focus on VEOs in their posture statements.<sup>37</sup> To be sure, VEOs did not stop operating when the guidance was published and they will continue to undermine US activities, with ideology as their primary driver. It has been shown throughout history that ideologies cannot be defeated with mili-



U.S. Army Lt. Col. Sachiyo Kawaguchi, left, a dentist assigned to the Civil Affairs East Africa (CA-EA) functional specialty team in support of Combined Joint Task Force-Horn of Africa, helps teach English to Fatouma Ilyas, right, a volunteer at Solidarte Feminine in Djibouti City, Djibouti, July 1, 2021. (Photo by: SrA Taylor Davis, USAF)

tary force. Shifting the focus from the VEOs themselves to the underlying causes is likely to produce better results. As a result, counter-VEO operational and tactical actions remain, which utilize valuable national resources in both blood and treasure that would be more useful if integrated with other instruments of power in the regions where the BRI is making an impact.

Rather than assuming that all Chinese BRI actions are nefarious, a more detailed understanding of their actions should be pursued. Their “why” could provide US CCMDs and WOG with more effective strategies to counter BRI actions by shaping the operational environment. The US military can and should continue to be America’s “big stick,” but its true weight will be felt as it underpins the other elements of national power. While military force may still be necessary for certain situations, the US government should employ its economic might, its informational superiority, and its diplomatic corps as its primary measures while the strength of potential military action plays that critical but supporting role. The military instrument of power should be closely aligned

with the long-term goals of the local and regional DOS leadership rather than simply in coordination with those teams. Under Title 22 USC, the DOS has the lead; conflicting Title 10 roles and responsibilities often confuse the issue.

In shaping the operational environment around BRI activities, relationships matter. At times, the United States’ narrow or short-term mindset is often at odds with the broader, relationship-focused mindset of other nations in Africa, Central Europe, and South Asia. The military leadership and members of the CCMDs are often only in their positions for relatively short periods while foreign service officers have a much longer time in the seat to build the needed relationships. China will always be a neighbor of these nations and the US only seems to show concern sporadically, driving these countries into China’s arms and hurting US strategic goals.

To truly leverage the military instrument of power in addressing the activities and implementation of the Chinese BRI, CCMDs and military leaders must consider the strategic guidance as articulated

in the NSS and NDS; likewise, they must shift their mental model away from operational and tactical actions against VEOs. Moving to a posture supporting DOS civilian leadership goals and strategy will help to minimize incompatible activities, reducing both the financial and human cost, and begin to align US actions with its grand strategy.<sup>38</sup> While security is the backdrop that allows nations to move on from poverty and suffering, the US military, when used to provide security for a foreign nation, can be successful in short-term, localized activities. These actions drain resources from other instruments of power activities, result in loss of American lives, and often create de facto “A-Team or B-Team” mentalities among foreign countries. These negative aspects can prevent the effective use of other US instruments of power to address challenges, such as those posed by the BRI.

### **ECONOMIC INSTRUMENT OF POWER**

The economic instrument of power allows countries to use their productivity, financial markets, trade, currency, and capital to influence the world. The BRI is a massive application of economic power by China. It is characterized primarily by bilateral agreements between China and the specific country they are investing in, leading to “debt-trap diplomacy,” as previously described. Utilizing China for sole-sourced BRI projects chains them to China, not only for debt, but also for long-term relationships providing knowledge, technology, spare parts, and maintenance of their infrastructure projects.<sup>39</sup>

The worldwide economic slowdown caused by the COVID-19 pandemic will lead countries to reassess their BRI-related debt loads, and many will require restructuring. To date, there has been little sign that China is willing to renegotiate debts. The COVID-19 pandemic has also caused a global slowing of the BRI. For example, the \$6 billion Jakarta–Bandung high-speed railway project in Indonesia has been delayed multiple times.<sup>40</sup> Other similar delays and the lack of debt restructuring are causing countries to question their dependency on China.

The economic instrument of power has great potential to counter the BRI simply because the US and China combine to account for 40% of global trade.<sup>41</sup> The US has a history of applying its economic instrument of power to counter communism. After WWII, the US instituted the Marshall Plan as an economic recovery program for war-damaged Eu-

rope and to prevent the spread of communism on the continent.

Multilateral trade agreements like the Marshall Plan were deemphasized during President Trump’s administration. For example, he rejected the Trans-Pacific Partnership (TPP), an agreement between 12 countries linking Asia and the Americas and representing 40% of global gross domestic product. The TPP was designed to temper China’s growing influence in the region.<sup>42</sup> In addition, many of the US agreements with African countries were bilateral and focused on larger countries, ignoring countries that were too small to benefit the US.<sup>43</sup> A reversal of these policies offers an opportunity to counter the BRI. Despite China’s recent growth, the US is still the world’s largest economy. As a result, there are several additional powerful economic levers the US should utilize to mitigate the BRI’s impact.

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**The US should work to open international markets and replace bilateral Chinese BRI agreements with multilateral agreements.**

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The US should work to open international markets and replace bilateral Chinese BRI agreements with multilateral agreements. This would limit exposure to Chinese political influence and create more of an international open marketplace from which countries could benefit.<sup>44,45</sup> One example is the Quadrilateral Security Dialogue, also known as “the Quad,” which is a partnership between the US, India, Australia, and Japan that can be used to counter China’s expanding market reach. Part of these open market initiatives would include removing punitive measures such as tariffs, sanctions, and non-tariff barriers to trade.<sup>46</sup>

In addition to opening markets, the US should increase foreign direct investment. This increase would reverse its decline from \$50.4 billion of foreign direct investment in 2017 to \$43.2 billion in 2019, a time when China increased its direct investment through the BRI.<sup>47</sup> Subsidies and economic stimulus packages invested directly in infrastructure projects would provide countries an alternative to the BRI. The fact that global interest rates are at historic

lows can make non-Chinese foreign investment that much more attractive.<sup>48</sup>

The US, its allies and partners, the IMF, and the World Bank should offer debt relief and assistance packages to BRI partner countries. These would include debt forgiveness, suspension or deferral of payments, emergency credit lines, and debt restructuring. These initiatives would counter the bilateral “debt-trap diplomacy” of the BRI, but would need to be balanced with the risk of inflation that accompanies massive financial stimulus.<sup>49</sup>

Finally, the economic and COVID-19 related problems with the BRI have opened a window of opportunity to convince China to modify the BRI and work with the global community. If China is unwilling to cooperate in this economic sphere, perhaps areas of mutual interest such as counter-terrorism and environmental reforms could serve as additional areas of cooperation.<sup>50</sup> The BRI has become too big to fail; therefore, if China finds itself struggling to maintain the BRI in its current form, international cooperation maybe its only recourse.<sup>51</sup>

## CONCLUSION

Just over two decades into the 21st Century, several pundits have already labeled it “China’s Century,” an acknowledgment of the country’s exceptional growth potential and a simultaneous slight of America’s 20th Century success.<sup>52</sup> The BRI remains the centerpiece of China’s strategic competition strategy and a viable means to achieve its expansionist ambitions through 2049 and beyond. That strategic success and the displacement of the US global leadership role, however, is neither assured nor inevitable. The US maintains its full complement of national instruments of power, simultaneously capable of both countering the BRI and mitigating the predicted fall of the US from its hegemonic power. Through increased investments in engaged diplomacy, for example, the US can best leverage its powerful network of allies and partners in leading the response to China’s “debt-trap diplomacy” tactics. Similarly, with savvy information campaigns, the US can highlight China’s questionable BRI practices while correspondingly offering a competing narrative based on foundational US beliefs and values. After years of sustained and high-profile operations against VEOs, reorienting the US military’s focus back toward a supporting role in concert with diplomatic and economic efforts offers

to pay increased dividends toward achieving key strategic objectives. An increase in multilateral economic agreements, backed by an enduring commitment to free markets, would continue to curb China’s powerful fiscal influence. A window of opportunity exists to counter China’s global ambitions as manifested through the Belt and Road Initiative. The ultimate success of US efforts will depend on both its skill in effectively coordinating these instruments of power as well as its commitment to their ultimate execution

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## END NOTES

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<sup>1</sup> Andrew Chatzky and James McBride, “China’s Massive Belt and Road Initiative,” *Council on Foreign Relations*, last modified January 28, 2020, <https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative>.

<sup>2</sup> Agnes N. Leslie, “China-Africa Relations: The Belt and Road Initiative and Its Impact on Africa,” *African Studies Quarterly* 19, issue 3-4 (2020): 1-7.

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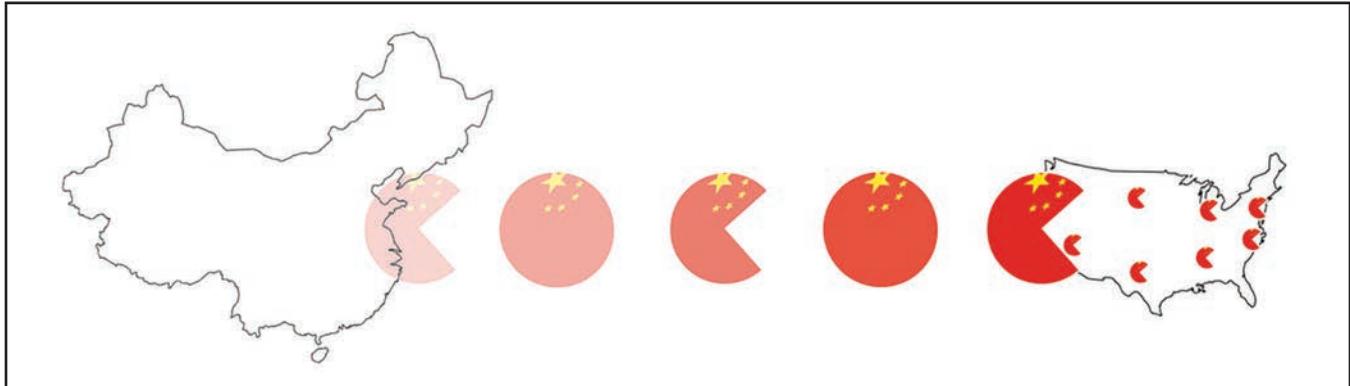
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# DISMANTLING THE CLAUSEWITZIAN TRINITY: HOW CHINA IS ERODING THE MEANS AND WILL OF THE UNITED STATES TO PUNCH BACK



China is exporting its diaspora across the globe, which implements the Chinese Communist Party's strategy throughout all industries and parts of government.

**By Lt Col Phil Garito, USAF; LTC Colin Greata, USA; CDR Michael Bell, USCG; LCDR Travis Miller, USN**

The threats that China poses are elusive to both the casual observer and to the dedicated, military strategist. Contemporary military professionals are deciphering an integrated, irregular threat picture characterized by

- artifacts that *suggest* (not empirically prove) a threat template
- actions that are clandestine and often legal, but have the potential to be used maliciously
- new asymmetries in new domains (business, cyber, education, etc.) that aim to dismantle United States (US) military might without engaging it directly

By design, these often legal activities have limited objectives in order to not attract attention. In some cases, the stage is set, but the malicious use of a threat is not yet active. Whether they are legal or not, their clandestine nature means that we only uncover a portion of these actions—often in hindsight—and we otherwise have just a mere *sense* that competition is heating up by observing an increased erosion of US hegemony and relative military power.

Where seen with clarity, these so-called *irregular threats* are confusing and we are slow to react, leaving the United States skating “to where the puck is”. The relevance of our adversaries usurping relationships with important global partners in the form

of economic deals, diplomacy, and military training often goes unnoticed.

Frequently overlooked, China undercuts America's innovative advantage through the purposeful use of its diaspora in US research labs and universities, which eventually reduces the asymmetries that we can bring to the battlefield. Increasingly, irregular threats and competition below the level of armed conflict thrive in permissive environments—indeed within the homeland, create a multifaceted problem for the US military, and require globally integrated operations to protect the homeland and US interests. Taking all of this into consideration, it seems that China's strategic aims are not oriented on building its military power, but instead on winning the next great war without a shot fired.

To achieve this aim, China seeks to dismantle the Clausewitzian Trinity (military, government, and people) by challenging US dominance indirectly through obscure methods. Attacking one of these elements inhibits America's ability to compete; however, the Chinese Communist Party's (CCP) strategies confront all three to undermine American competition. Each of these vertices has critical vulnerabilities in the web of links, nodes, and systems that indirectly sustain the US homeland and support national defense. **By investigating the impact on the US military, government, and people, the authors will arm the reader with a basic sense for the infinite manifestations of China's strategy, with the aim of illuminating the threat that erodes America's means and will to fight back.**

## MILITARY

Through the use of legal and illegal business dealings and information operations, China is able to erode the innovative technology that gives the US military an advantage over its adversaries. In an effort to dismantle the US military vertex, China pursues opportunities that mitigate US asymmetric advantage and our ability to sustain active combat operations.

**Leveling the asymmetries the United States Brings to the battlefield.** There are two critical vulnerabilities that China is exploiting to achieve this objective: access to weapons materials and our innovative edge.

Achieving overmatch against the US arsenal is too costly and provocative for China to attempt directly. So, while investing in its own military, China simultaneously attempts to undercut US military strength. The CCP cannot undercut our military strength by stealing or destroying our strategic weapons—that is too hard a target and would provoke us into war. Instead, China maps out the critical capabilities of our arsenal and finds the more accessible elements that are two or three degrees separated from the final product: the active materials that make it work, how the weapon communicates with ground or space nodes, the process by which the weapon is made, how patent law can be exploited for emerging technologies, etc. For example, China has already started to dominate acquisition of key natural resources, such as the rare earth minerals, that feed the production lines of the US military's technological capabilities and improvements.<sup>1</sup> In situations where China does not substantially control the resource, any shift in trade partner preference from the US to China degrades the supply chain, increases the price of the resource, and increases production costs and timelines. These degradations can occur indefinitely before being detected and can be challenging to correct, but they have an impact on the throughput of technological systems used by the US military.

In addition to measures taken to affect the US technological supply chain, China attempts to level US asymmetric advantage by undercutting our innovative edge. A large portion of this activity is accomplished legally by way of business dealings—often under company structures that do not easily tie back to the CCP—or some kind of exploitation of US law, like patent laws or our liberal visa system for

study and research.<sup>2</sup> This legal access makes it easy to channel emerging technologies back to China before they have been implemented or sometimes patented. In other cases, undercutting our innovative edge involves cyber heists or insider intellectual theft. For instance, the United States considers artificial intelligence (AI) to be the next difference maker in defense.<sup>3</sup> During the last 15 years, Google's artificial intelligence ventures have outpaced its competition and attracted the attention of China—leading to a contentious history of Chinese attempts to unethically use and steal Google technology.<sup>4</sup> This serves as only one of many vignettes where China has attempted to illegally benefit from US private industry. IBM, General Electric, and Apple—among others—have reported intellectual theft by Chinese employees as well.<sup>5</sup> This theft and subsequent growth allows China to leverage powerful data aggregation and analysis technologies with a broad potential for malicious use.

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... the United States considers artificial intelligence (AI) to be the next difference maker in defense.<sup>3</sup>

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**Burdening the United States' ability to sustain a fight.** This objective can be achieved through myriad vectors, as sustaining a high-intensity conflict relies on almost all industries. Any time a CCP company owns infrastructure or a resource the US military relies on—or even when a loyal Chinese expat is working with these resources—that constitutes an *opportunity* for sabotage (obstruction or destruction) or subversion (systematic undermining or overthrow). Since both innocuous and malicious businesses can look the same, this is a good time to remind the reader that irregular threats are characterized by artifacts that suggest, not prove, that they are threats. We must correct for confirmation bias and be intellectually honest as we discern what is an irregular threat versus a paranoid illusion like we saw with the Red Scare in the 1950s.

The number of examples is too large to even scratch the surface on proving the point here, so we will focus on just three examples where the artifacts suggest that our ability to mobilize all aspects

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China knows that even with pre-staged assets, a high-intensity conflict will require the United States to project force along maritime routes.

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of our economy and sustain a fight could be threatened. China knows that even with pre-staged assets, a high-intensity conflict will require the United States to project force along maritime routes. Under its perfectly innocuous-sounding *Belt Road Initiative*, China owns a concerning number of ports along the United States' west coast and the Panama Canal's three megaports on both the Pacific and Atlantic entryways.<sup>6</sup> As another example, China knows that a high-intensity conflict scenario would require the United States to rely largely on its own bread basket, but more and more of our farmland and meat industry is owned by the Chinese Communist Party, sparking alarm in US Congress when they labeled it a "national security risk."<sup>7</sup> Finally, the United States relies on various networks to coordinate its joint force, from muster-

ing forces to passing orders to ordering and tracking logistics movements—not to mention the automated operation and monitoring of our domestic infrastructure. It is difficult to discern the exact extent to which our networks are vulnerable, but both China and Russia have demonstrated the capability and willingness to access, manipulate, and disrupt our networks.<sup>8</sup> In a high-intensity conflict scenario, just these three examples begin to show how China is building a "kill switch" that could poison, limit, or destroy the Chinese-owned portion [and more—like the parts of industry that rely on the Chinese portion] of these industries and eliminate our ability to sustain a fight, but even short of war, the Chinese Communist Party has the capacity to disrupt maritime commerce, pinch food supplies, or enact significant disruptions on our networked industries and markets.

As with many clandestine operations, these predatory tactics are easily defeated once they are illuminated, because there are many means by which the US population and our allies can eliminate the access of malicious actors—mostly simple means like boycotting, divesting, and sanctioning. Thus, accurately



Marine Corps Lt. Gen. Michael Groen, director of the Joint Artificial Intelligence Center; Jane Pinelis, JAIC chief of test and evaluation; and Alka Patel, JAIC chief of responsible artificial intelligence, hold a news conference to provide updates on the progress of implementing Defense Department artificial intelligence capabilities, at the Pentagon, Washington, D.C., June 24, 2021. (Photo by: MC2 Ashley L. Cheesman, USN)

*detecting* the Chinese subversion vectors is the critical component to protecting and, where needed, regaining US military dominance.

The battle against US military strength exists outside of military battlefields where the military can legally defend itself. Instead, the battle wages against the other elements of national power and *within the American private sector, which falls under the purview of federal and state legislatures*. It is important to note the intent of the CCP using this purposeful navigation of the US legal code and our free market—while *disallowing* foreign direct investment in China, which is an approach that spreads its tentacles through the Clausewitzian vertices of government and people.

## GOVERNMENT

In an effort to diminish the strength of America's Clausewitzian vertex of *government*, China aims its irregular activities towards the objectives of (1) weakening the US government's ability to set and implement policy while (2) limiting US soft power with global partners.

**A Weakened Ability to Set and Implement Policy.** This objective tends to be the gold standard for attacking the *government* vertex of the Clausewitzian Trinity. The critical vulnerability undergirding a government's ability to implement any element of national power is legitimacy. The CCP wants to degrade *legitimacy* by attacking the values upon which America was founded, its leaders, and the ongoing methods of governance. These pillars of legitimacy are vulnerable by:

- Clouding public understanding of the structure, function, and laws of the US government
- Revising the history of America's founding<sup>9</sup>
- Disproportionately amplifying real or perceived inequities at the hand of the US government<sup>10</sup>
- Selectively using and misinterpreting facts
- Scapegoating
- Putting into question the fidelity of political leaders,<sup>11</sup> which, even if conclusively disproven in the eyes of some, is a potent form of disinformation

The primary *means* of achieving their objec-

tives is through media/social media bombardment and the use of influential cultural icons like actors, athletes, and activists. This blend of *information saturation* and *credibility* that our adversaries use to muddy the social discourse in America could erode legitimacy in a way that puts all uses of national power in question and limits America's ability to implement foreign and domestic policy. It is important to note that the CCP will simultaneously improve its own image using these same tactics and take advantage of any naturally occurring events in America that already align with their objectives. The overall erosion of US government legitimacy squarely favors China, because it stifles the functioning of our institutions and occupies our political leaders with domestic turmoil.

**Limiting US Soft Power with Global Partners.** Using a different set of tactics and against a broad, global audience, China seeks to limit US soft power. The CCP preys upon the world's collective short-term memory, infringes on US partnerships, and makes the manipulation of international law normative. For the defenders of US interests, these tactics are among the more predictable and visible, as they fall in line with a playbook that China uses across the globe.

The first tactic aimed at limiting US soft power is to prey upon the world's collective short term memory. China understands that a quick way to deter US retaliation against any wrongful action is to tell a lie, even if they know the lie will be outed the following week. The world's collective memory is short-lived, so China can tell another lie the following week and keep the cycle of confusion going as long as they beat the lag time for truth to emerge. Russia employed this exact tactic after its invasion of Ukraine,<sup>12</sup> buying itself precious time as world observers failed to coalesce in resolve against the aggressors.<sup>13</sup>

Another tactic that supports this objective is infringing on long-standing US partnerships, particularly where America has strategic alliances and in countries geographically closest to the United States. This tactic comes in the form of either embarrassing the United States or befriending our partners. The most vivid and recent instance of embarrassment was the Taliban overthrow of the Afghan government. Not only does China have a history of working with

the Taliban in both espionage and mining operations for copper and rare earth minerals, but supporting the Taliban's swift overthrow of the Afghan government was the obvious choice to embarrass the United States during our withdrawal.<sup>15</sup>

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Our adversaries know that when a partner of the United States meets a point of instability, they need to scramble to be the *first* friend, even if the solution they offer is not a great one.

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When it comes to befriend our partners, the “foot in the door” method almost always comes in the form of economic opportunity or aid. If there is a hurricane in the Caribbean, China is happy to assist in rebuilding.<sup>16</sup> Likewise, Russia was front and center when neighboring Mexico was struggling over damaged oil infrastructure and its response to the global pandemic.<sup>17</sup> The tactic can be called *scrambling*. Our adversaries know that when a partner of the United States meets a point of instability, they need to scramble to be the *first* friend, even if the solution they offer is not a great one. It plays on the emotions of a country reeling in its time of need and leaves a very positive fingerprint in the name of America's adversaries. The US approach, on the other hand, is stifled by bureaucracy and has a hard time keeping up. Using that approach to compete with our adversaries' quick reactions costs us favor and soft power with strategic allies.

## PEOPLE

China's primary objective with regard to the US population is to undercut the US resolve to fight, and that comes in the form of both sowing dissatisfaction with the US government, as well as placing the CCP and Chinese culture in a positive light. In particular, China attempts to establish itself as an innocuous and benevolent nation to the average American voter by targeting three critical vulnerabilities—the general population, education, and business—in the hope that Americans will be more likely to protest US actions than to seek war with China.

## Influence on the American population.

Under President Xi, external propaganda work has become a top priority of the CCP, with China carefully curating its use of information, misinformation, and disinformation. In 2010, journalist Xiong Min stated “the right to speak in the world is not distributed equally,” and “eighty percent of information is monopolized by Western media.” She said it was time to end that monopoly by means of what China has called the Grand External Propaganda Campaign (GEPC).<sup>18</sup> The campaign began as an anti-CNN movement to prevent distortion of what China wanted to portray as its international image. At the August 2018 National Meeting on Ideology and Propaganda, President Xi stated: “To present good images, we should improve our international communication capability, tell China's stories well, disseminate China's voice, show an authentic media and beneficent China to the world, and raise the country's soft power and the influence of Chinese culture.”<sup>19</sup>

In the last ten years, China has invested billions in US information powerhouses in an attempt to influence the American population, using news, sports, movies, TV, and the internet as the primary vectors. Below is an accounting of just *some* of the infosphere conduits the CCP has developed so that it can have near-continuous contact with individuals in its target populations:

China and its proxy companies have majority-controlled ownership in nearly 2,400 US companies.<sup>20</sup> In the media realm this includes a \$150 million investment in Reddit, which allowed China to remove the most popular pro-Trump subreddit from the registry. The social media app, TikTok, allows China a direct-to-population conduit for Chinese content and ideology. China's Tencent Music Entertainment owns ten percent in Universal Music Group Music and significant chunks of video game producers, as well as a \$150 million investment into Discord, a video game chatroom—all of which equates to hundreds of millions of users. The CCP's Wanda Group owns AMC Theaters and Legendary Entertainment Group, equaling control of more than 8,000 American theater screens and other media platforms, allowing China to project soft

power and block unflattering depictions of the Chinese government from being presented.<sup>21</sup>

China has used its ownership in these companies and control of the media to influence stories, change actors, and change plots. China's western media ownership represents a large umbrella of what influences America's youth: music, movies, and video games. It seems that China is pursuing a long-term propaganda strategy to change the American strategic narrative, subvert the cultural fabric of America, and endear China in a way that Americans would have trouble supporting a fight against the country.

**Education.** China is the greatest source of foreign students to the United States, and there is evidence of "politically-motivated attempts by Chinese Communist Party entities and a small number of Chinese students to infringe on the academic freedom and personal safety of university persons at American universities."<sup>22</sup> There are numerous instances of CCP officials based at Chinese Embassies and Consulates within the United States attempting to access,

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... China is pursuing a long-term propagand strategy to change the American strategic narrative, subvert the cultural fabric of America, and endear China in a way that Americans would have trouble supporting a fight against the country.

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influence, or terminate academic activities involving content sensitive to China, such as invitations for the Dalai Lama to speak or group discourse over Taiwan or Hong Kong freedom.<sup>23</sup> These attempts have taken the form of complaints against universities, pressure on experts to change their views, visa denials to China, grant and funding denials, and encouragement for university faculty to lean more in China's direction. Accompanying the pro-China narrative are also the narratives that the CCP supports in American education that lead us to focus on our differences within



Soldiers assigned to 3rd Brigade Combat Team, 101st Airborne Division (Air Assault) prepare to set sail for their Sea Emergency Deployment Readiness Exercise 23 August, 2021. The Rakkasans will be sailing aboard the USNS Gilliland as well as the USNS Mendonca from Port Charleston, SC to Port Arthur, TX where they will transport their equipment to the Joint Readiness Training Center at Fort Polk, Louisiana. (Photo by Spc. Jacob Wachob)

the population, rather than our common purpose and values—a move to degrade the strength of a country that is straight out of the Marxist playbook. As much as the American public would want to believe that our higher education system is impervious to pay-to-play influence, the overarching problem for universities when it comes to dealing with undue or malign influence from China is the growing economic dependence of universities on large numbers of Chinese students, and that dependence is a strong lever in dictating the topics and bias of a university's curriculum.<sup>24</sup>

**Business.** Business is the lever arm by which the Chinese Communist Party ensures the Grand External Propaganda Campaign executes without impediment. Ideally, business in a free market allows people to weigh ventures not only against return on investment forecasts, but also against one's moral values. Therefore, business should not be a lever that China can pull to influence the American people, but with a population of 1.4 billion, the CCP can make it very painful for businesses that do not fall in line with the GEPC narrative. The National Basketball Association (amid plummeting viewership) and its most prominent player, LeBron James, serve as an example of how powerful this leverage can be. As stalwarts of the social justice movement, their moral compass on civil rights was clear. However, while defending the CCP against the Houston Rockets general manager's support for freedom in Hong Kong, they were willing to overlook China's brutal tactics in Hong Kong and the enslavement of millions of Uyghur Muslims.<sup>25</sup> Separately, it is probably not a mere coincidence that Maverick's leather jacket will no longer have the flag of Taiwan on it when *Top Gun: Maverick* releases this November.<sup>26</sup>

More examples of how the GEPC intentionally coordinates business and diplomacy come from Australia. When Australia announced an independent investigation into the coronavirus, China threatened Australia's tourist market and targeted its beef and barley exports, stating Chinese tourists would have "second thoughts and parents would reconsider 'whether this is the best place to send their kids,' while ordinary consumers would ask, 'Why should we drink Australian wine? Eat Australian beef?'"<sup>27</sup> When Australia persisted, China banned beef for "technical reasons," accounting for 35 percent of Australia's beef exports, and placed 80 percent tariffs on barley on the

basis of an 18-month-long anti-dumping and countervailing duties investigation.<sup>28</sup> Australia ended its push for an investigation independent of the World Health Organization.

On the surface, this global economic advancement by way of business and trade is the type of expansion the United States supports. However, the power China gains over physical resources, influential companies, and meaningful portions of gross domestic product in various countries, including the United States, enables power over public opinion, our impression of the CCP, and our ability to resist Chinese influence.

In its approach to undercutting the will of the American people to war with China, the CCP has set up a campaign that injects positive narratives regarding China, and negative or divisive American narratives. Those seeking to illuminate the truth behind China's authoritarian regime are met with intense pressure from the CCP's pervasive trade and business sectors in an effort to compel massive businesses and media platforms back into compliance. The examples of Chinese Communist Party influence are ubiquitous within the United States, and it falls on each of us to not be passive consumers of information, but vigilant seekers of truth as we navigate the infosphere.

## CONCLUSION

*"The sky is full of stars, and the world is run by those who can make constellations of them."—Unknown*

Activities aimed at reshaping the international order set the background of Americans' everyday lives, constituting the slow advance of adversary strategic aims. China conducts influence operations targeting cultural institutions, media outlets, business, industry, academia, the government, and the military. This is done to erode US credibility, influence our political system, degrade our economy, and undermine national security.<sup>29</sup> These irregular tactics pose a significant risk to the US military, government, and people—the three vertices of the Clausewitzian Trinity that must be aligned for a nation to wage war.

To the extent that irregular threats are typically legal and clandestine, none of the methods for dismantling the US trinity depicted here can be empirically proven. Instead, the references throughout this article represent artifacts that *could* be interpreted

as malicious and in no case can one determine the success level of these adversarial efforts, representing an unquantifiable risk. However, as Stuart Diamond notes in *Getting More*, the difference between a good baseball batter with an average of .280 and a Hall of Fame batter with an average of .310 is just one extra hit every nine games.<sup>30</sup> All told, China and Russia's attacks below the threshold of war have not completely dismantled the US trinity, but they put enough pressure on America's diplomatic game to cause missed opportunities, and they inflame internal discord enough to make the government inwardly focused and a little overwhelmed; maybe that all equates to an extra hit every nine games.

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The most advantageous thing for China and Russia would be for America to continue to not see the relentless assault ...

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## A CALL TO ACTION

Irregular threats, left unimpeded, will undercut the US resolve to fight, stifle the strength of the American economy, reduce our innovative advantage, and damage global opinions regarding America. The most advantageous thing for China and Russia would be for America to continue to not see the relentless assault—and the authors say *relentless assault* not with emotion, but in an attempt to accurately characterize it—these countries are committing on our *will* and *means* to retaliate. In fact, these countries have seen the power of American vengeance so many times throughout history that they are very carefully avoiding any “flash in the pan” that would galvanize our resolve. So, while the right approach to these irregular threats remains unclear, seeing the threats with clarity and acknowledging their purpose broadly across American society—not just within isolated military and government circles—must happen now. The call to action for any American reading this is to walk away knowing and committed to the following:

- There are infinite manifestations of the new strategies in new domains.
- Become a student of the nature of these irregular

threats and practice uncovering the malicious potential of a seemingly innocuous action.

- Be wide-eyed about the potential threats within great power competition, but intellectually honest as to your level of fidelity that they are actually threats.

While the primary battlefield for these irregular threats exists within the private sector and U.S. legal code, the US military ought not be a passive observer. Understanding the complexity for the Department of Defense, some likely candidates for addressing irregular threats and leading progress towards detecting, mitigating, and defeating them are US Cyber Command and US Special Operations Command. Cyber Command holds this distinction more and more in a world where decisive operations can conceivably come in the cyber domain. The US Special Operations Command is a likely candidate as the global integrator for actions against irregular threats, due to special operations forces' training in irregular and unconventional warfare activities that include an understanding of complexity and human terrain. At the individual level, every Service Member has a role in expanding one's absorptive capacity for complexity and accounting for the myriad threats to our military.

Beyond the Department of Defense, irregular warfare requires a whole of government approach, and thus the US national security apparatus must evolve to effectively compete against these amorphous, hidden threats that do not readily appear on the American radar. It is our sincere hope that this message goes beyond military circles and inspires an active vigilance by those who daily walk the battlefield of irregular threats.

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## END NOTES

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# BLAST FROM THE PAST

## APPLICATION OF ALLIED AIR POWER VERSUS SOVIET OFFENSIVE AND DEFENSIVE OPERATIONS

**Editor's note:** *This month's feature article, "Dismantling the Clausewitzian Trinity: How China is Eroding the Means and Will of the United States to Punch Back," shows how the sophisticated strategies of our near-peer competitors are dismantling the vertices of the Clausewitzian Trinity (military, government, people) by clandestine but often legal means. In this month's installment of Blast From the Past, we look back at the work being done by the US Army and Air Force as the force transitioned out of Vietnam and refocused on great power competition (GPC).*

*In 1978, the US military found itself in a similar position to that of today: the force was recently practiced in war by attrition, characterized largely by low-intensity conflict and operations in the human domain after coming out of Vietnam in 1975. As our military reacquainted itself with what it knew about high-intensity conflict with a near-peer, it faced the question of how to anticipate what new asymmetries the Soviets would bring to new domains. At the time, the domains serving as new platforms for competition included the infosphere, space, and technology. In this issue of "Blast from the Past", you will see that the 1978 Air Land Bulletins give us a glimpse into how the force was thinking about and depicting the Soviet threat.*

*The graphics that appear below were important to the Services, as they helped reset the force's mindset on high-intensity conflict just as we have reoriented in our preparations for contingency operations on the Korean Peninsula and in response to GPC. Note how the threat pictures in the articles below are high-confidence, simple, and linear,<sup>1</sup> whereas, the new generation of military professionals are deciphering an integrated, irregular threat picture characterized by:*

- artifacts that suggest (not prove) a threat template*
- actions that are clandestine, often legal, but have malicious potential*
- new asymmetries in even more domains (business, cyber, education, etc.) that aim to dismantle US military might without engaging it directly*

*Today, as we reduce forces in the Middle East, Southwest Asia, and Africa, we are experiencing both cyclic (more of the same) and novel (unique or wholly new) challenges as we pivot to GPC.*

*Of course, there is a tendency for each generation to see its challenges as unique. In hindsight, the complicated nature of the near-peer threat in the late 1970s seems elementary compared with the complex strategies we face today. Allowing ourselves to only see the challenge with the tidy benefit of hindsight does not give proper credit to those who have gone before. Uncovering and codifying the Soviet threat was no doubt just as uncertain and daunting as understanding today's threats.*

*Note: The early Air Land Bulletins were quite succinct. Therefore, we offer an expanded introduction for contextual understanding and provide some discussion on AirLand Battle development's applicability to the current US security situation.*

<sup>1</sup>Admittedly, this explanation compares apples and oranges by taking just the tactical side of what was a comprehensive U.S. Cold War strategy, but depicting a tactical fight was a luxury in 1978. Today, we would not use a linear graphic to describe the sophisticated Chinese and Russian strategies that war with us while we are unaware we are in a fight and never intend to engage us tactically.

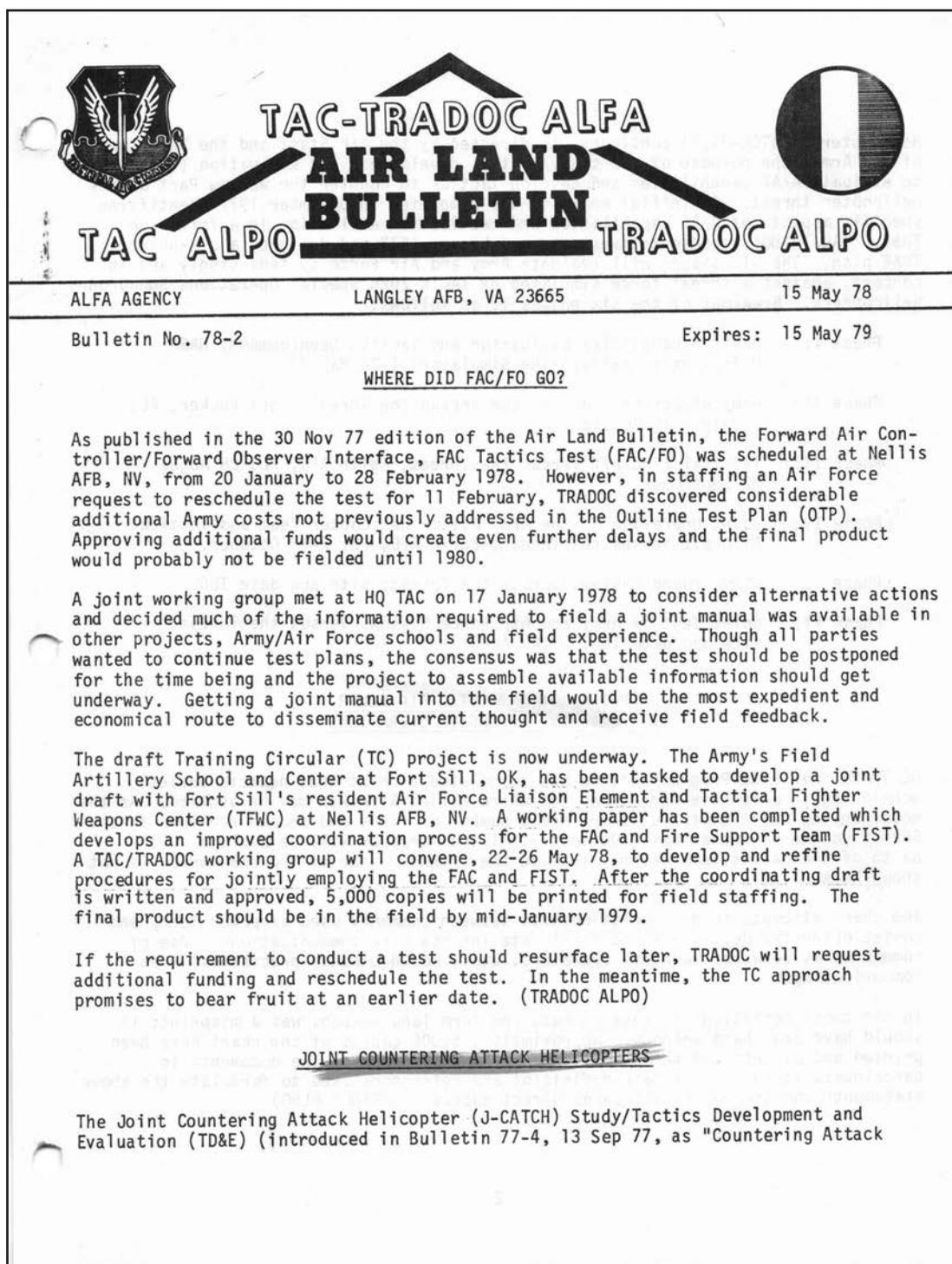


Figure 1. Cover of the Air Land Bulletin 1978-2

## DOCTRINE DEVELOPMENT AT CRISIS POINTS

Inefficiencies in inter-Service cooperation have plagued collective US military action throughout our history. However, as battlefields have expanded and warfare has become more interconnected, the necessity to work better together has only increased. Unfortunately, the Services are still plagued by examples of miscommunication or divergent efforts.

Understandably, as each Service focuses on conducting high-intensity conflict within its primary domain, there is sometimes a tendency to neglect the interconnectivity required for the joint fight. The US Army and Air Force recognized this in the 1970s while facing off against the Soviet Union, and all of the Services recognize the importance again as we work to address the rising threats posed by Russia and China.

In 1973, US Army Chief of Staff, Gen. Creighton W. Abrams and US Air Force Chief of Staff, Gen. George S. Brown recognized the need to move beyond competing Service interests and, instead, to focus on cooperative battlefield efforts in areas beyond the application of close air support (CAS). As a result of this effort, the newly minted US Army Training and Doctrine Command (TRADOC), under Gen. William E. DePuy, and the US Air Force Tactical Air Command (TAC), led by Gen. Robert J. Dixon, were directed to work in unison to identify and reduce combat deficiencies. Among other initiatives, the two commands created the Air Land Force Application (ALFA) Center at Langley AFB, VA to coordinate efforts.

During this period, the Soviet Union, bearing its ability to threaten Western Europe, loomed at the forefront of the Defense Department's mind. Of particular concern was the depletion of US combat power following several years of action in Vietnam. This concern, in combination with technological developments in the Soviet Union and the significant force imbalance between the USSR and NATO, created a crisis point for US military doctrine.

Initially, TRADOC focused on an active-defense model for thwarting Soviet forces. This model relied on technological development, improved training, and combined arms effects to counter the lethality of Soviet weaponry and to prevail on a battlefield "where tempo and destruction of material would dramatically surpass that of previous wars." Established as US Army doctrine in the 1976 version of FM 100-5, the concept was criticized by some for its defensive orientation and dependence on firepower and attrition rather than maneuver warfare.

As Gen. Donald A. Starry took command of TRADOC in 1977, he began to reconsider elements of the 1976 doctrine. Having just completed an assignment as the V Corps Commander in Germany, Gen. Starry was particularly interested in the Soviet threat to the Fulda Gap region. As one of three potential main routes for a Soviet advance through Europe, this region was of particular strategic importance. In considering the operational problem, Gen. Starry keyed in on the need to expand beyond the main battle area with a focus on 2nd echelon and deeper targets, limiting Soviet advancement and opening up opportunities for offensive action. The

US and our NATO partners would rely on airpower beyond the main battle area to target forces, logistical support, and Soviet command-and-control nodes.

While this may seem a bit elementary today, the air-to-ground integration in the 1970s rested on a foundation of close air support in the main battle area and air interdiction (AI) beyond the battle area—the two battlespaces were separated both in geography and in responsibility. The Army owned the close fight and the Air Force owned the deep fight. However, as the commander of Tactical Air Command, Gen. Wilbur "Bill" Creech, worked with TRADOC to solve this complex problem, the concepts of battlefield air interdiction (BAI) and the fire support coordination line (FSCL) emerged. With the adoption of these two doctrinal initiatives, the battlespace between the Army and Air Force was no longer a solid line of demarcation but, instead, a line that required some level of coordination with the other Service before striking targets (Example: If the Army were to strike targets past the FSCL, it would need to coordinate with the Air Force. For the Air Force, the opposite was true inside the FSCL.). This arrangement provided a codified method to attack enemy forces in the gray area between CAS and AI. In an effort to classify this type of doctrinal solution to an extended, integrated battlefield Gen. Starry chose the term AirLand Battle (Fig. 1 and Fig. 2).

Interestingly, while the concept of AirLand Battle and its requisite components of CAS, BAI, and AI were codified in both US Army and US Air Force doctrine in the 1980s, and firmly entrenched in mindsets of NATO and USEUCOM ground forces, the concept did not survive the planning process for Operation Desert Storm. Contrary to established doctrine, Lt Gen Chuck Horner, the USCENTCOM Joint Forces Air Component Commander for Desert Storm, preferred a method he referred to as "push CAS." This approach, approved by USCENTCOM Commander Gen. Norman Schwarzkopf, was exercised just prior to Iraq's invasion of Kuwait in 1990 and featured prominently in the eventual plan to expel Saddam Hussein's forces from the country. In it, the concept of BAI did not exist. Instead, CAS occurred inside the FSCL and AI outside the FSCL.

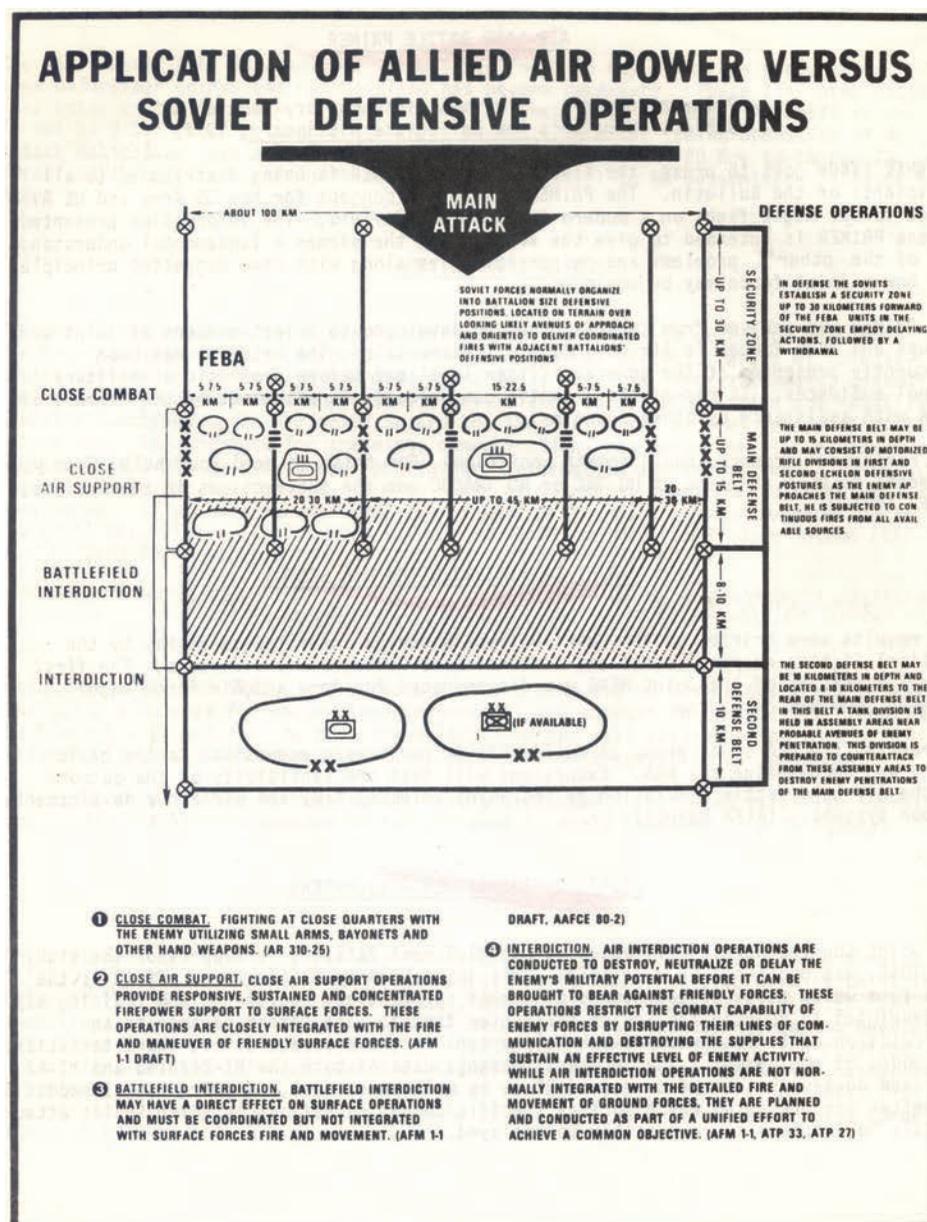
Doctrinal disagreements aside, the AirLand Battle concept marked a turning point in US Army/Air Force relations. While not fully accepted in either



HQ TRADOC Air-Land Programs Office formulated a chart that depicts Soviet echeloning in defensive belts and where Allied air power may be applied. The accompanying chart portrays two belts, obviously this chart cannot depict all the defensive belts since the Soviets normally defend in depth. As we attack, air power will be used in succession on each belt. We do not anticipate using large amounts of air power to attack forces in the security zone because the Soviets normally deploy small reconnaissance units there.

The chart attempts to draw a relationship between commonly used air power terms and Soviet defensive deployment to facilitate inter-Service communications. Use of common terms and areas of application would enhance precision when communicating.

Approximately 5,000 copies of this chart have been printed and distributed throughout the Army and Air Force. The documents in parenthesis at the end of each definition are references used to formulate the above statement and are not in all cases direct quotes.<sup>1</sup>



<sup>1</sup>HQ TRADOC Air Land Programs Office, TAC-TRADOC ALFA Air Land Bulletin, (Langley AFB, VA: 1978), Bulletin # 78-3.

Figure 3. Application of Allied Air Power Versus the Soviet Defensive Operations

Service, the concept broadly recognized the need for persistent attack throughout the depth of the battlefield. Neither the Army nor the Air Force could win a major conflict independently, and peer/near-peer adversaries necessitated close coordination between ground and air to build synergy of action. Sadly, it took a threat scenario that pitted overwhelming enemy strength against US/NATO forces for the two Services to recognize and then act to mitigate the rivalries that had eroded previous collective action.

Arguably, contemporary US forces face yet another crisis point. As anti-access/area denial platforms proliferate and counter-state gray zone operations become the norm, the new battlespace dwarfs the “extended” battlefield of the 1980s. Ongoing cyberspace operations and ostensibly innocuous business/diplomatic efforts both project enemy power beyond the traditional battlefield and curtail the relative strength of US regional forces. By taking the “fight” outside of the traditional military environment, our adversaries take advantage of cultural seams that exist between the military, government, and business to expand a form of economic colonialism—a practice that increases global influence external to the traditional Westphalian state system. As US forces battle the tyranny of distance to project force into regions of conflict, nation-states like Russia and China complicate the strategic problem with expansive defensive systems that seek to inhibit US maneuver while increasing the costs of action—essentially returning military conflict to the days of stationary defenses and attrition warfare.

For the United States, the crisis point of the 2020s is the inverse that it faced in the 1980s with the same relative force disposition. Now, instead of facing off defensively against the Soviet Union with the hope of creating small pockets for offensive action, the United States faces near-peer adversaries capable of taking offensive actions and then defending in force with a credible active defense. Such a strategy perfectly complements a nation with short supply lines, defense in depth, and a substantially larger force structure (regionally if not globally). The relative size of the adversary force and the defensive nature makes global near-peers into regional peers. Interestingly, while the current scenarios seem more precarious than the Fulda Gap problem of the 1980s, the solution is largely the same—the US military must work better together.

Some of this realization is evident in the contemporary support for the joint, all-domain command and control (JADC2) initiative. In a world inundated with data, the nation that is able to best synthesize and act upon relevant information is more likely to prevail in conflict. For the United States, this is especially important as most power projection will necessitate long supply lines and, potentially, a smaller on-site force structure. Of course, this battlespace equation has two components. The first is gathering information for decision, and the second is expeditiously acting on a decision to create effects across the battlespace.

As an organization, ALSA focuses on multi-Service interoperability. Through multi-Service tactics, techniques, and procedures publications; academic journal articles; media presence; and inter-Service networking, ALSA attempts to break down the same cultural barriers that Generals Starry and Creech tried to eradicate in the 1980s. By providing a common language for inter-Service cooperation, ALSA encourages interoperability in the battlespace. From the perspective of JADC2, while joint and Service doctrine centers strive to coalesce data and speed decision making, ALSA works the equation from the opposite side by breaking down Service barriers and speeding execution.

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## END NOTES

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# THE COUNTERFIRE CONUNDRUM: ACCEPTABLE LEVELS OF RISK IN LARGE SCALE COMBAT OPERATIONS



US Army and Japan Ground Self-Defense Forces conduct bilateral live fire missions during Orient Shield in Hokkaido, Japan, June 28-30, 2021 (Photo by: MAJ Elias M. Chelala, USA)

By **LTC Matthew R. Arrol (USA)**

## Introduction

"I'm going to fire it ... even if it violates an air coordination area," the Division Artillery Commander stated flatly as he stared through the expanse of the secure video-teleconference system. Two-thousand miles away, on the other end of the line, three Army Lieutenant Colonels, who for the past week had been advising him and his staff on the efficient and safe use of airspace within a division area of operations, sat transfixed by the bluntness of the comment. Much of the previous week's instruction and discussion with the DIVARTY commander's team on joint air operations had centered on the challenges of airspace management in large-scale combat operations and the role of the air coordination authority. Despite it all, there were still some lingering dilemmas

that remained. Specifically, how to address timely and effective counterfire, in a way that balanced the risk to aircraft with the risk to ground forces and their mission.

*"I just don't know any other way to do it dynamically, and still get it done in time to meet the target selection standards ... We either do this, or counterfire is dead as a tactic ... It's either shoot with some risk or don't shoot at all ... Otherwise, we're just pounding dirt, wasting ammunition and exposing ourselves".*

At first, there was concern by some of the Lieutenant Colonels on the line that the DIVARTY commander may have missed the point of the last week entirely. Their cumulative years of experience in working closely with the Air Force told them, that if air control measures were violated and the JFACC

started losing valuable crews and costly aircraft due to friendly ground fire, there'd be hell to pay. Did the DIVARTY commander understand that the air coordination authority might rescind his trust in the division's air support operations center (ASOC) as an air control element of the theater air control system and no longer delegate the division airspace at all? The Colonel's approach had the potential to 'go sideways' very quickly for the Army, with repercussions outside of just the division. However, as the commander continued speaking, it became clear that not only had he 'gotten the message' of the past week, but that his perspective and understanding of risk, was perhaps deeper than many of his contemporaries on either side of the Army/Air Force service divide.

The DIVARTY commander not only acknowledged the risk he and the division were taking, but how they intended to mitigate it in a concerted effort to buy down risk to the joint force, and not just the Army. The decision to engage with counterfire was not an endorsement of the flippant 'big sky, little bullet' theory that he had often heard from lazy peers as a young artillery officer, but was a carefully considered approach, based on decades of operational experience, familiarity with existing systemic limitations, empirical data from exercises, and an awareness of the current threat that should rightfully change our attitudes toward risk acceptance.

Given that context, this article seeks to create a broader understanding of the enduring importance of responsive counterfire for ground forces on today's battlefield. Furthermore, it hopes to use the example of counterfire to change joint force attitudes towards risk acceptance as the military looks toward more integrated multi-domain/ all-domain activities in a highly dynamic and lethal environment with strategic implications. Lastly, this article intends to reinforce the mitigation responsibilities of those who accept risk to achieve a greater degree of joint and air-ground integration and promote possible future solutions as well to lessen those burdens.

Defining what constitutes an acceptable level of risk for counterfire requires a reexamination of why the tactic remains relevant to the land component on the modern battlefield. Clausewitz's axiom that "the nature of war does not change" and that premise holds true for ground combat especially. In the last two decades, warfare in the land domain has

evolved at a rapid rate driven by technology, globalization, and great power competition that has created a battlefield that is not only hyperactive but more lethal than at any point in history. The result, which our national security documents have acknowledged, is that our approach to operating in this domain must likewise evolve to accommodate this change. With the Army's shift toward (once again) preparing for large-scale ground combat operations, the battlefield calculus for determining success or failure has introduced new variables.

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... this article seeks to create a broader understanding of the enduring importance of responsive counterfire for ground forces on today's battlefield.

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The recent conflicts in Crimea<sup>1</sup>, Syria<sup>2</sup>, and Nagorno-Karabakh<sup>3</sup>, provide numerous examples where the lethality of otherwise conventional field artillery systems was significantly enhanced by the ability of combatants to improve both the quality of targetable information, speed, and delivery of effects via semi-automated weapon systems with increased range. The results in each case were alarming. This improved lethality increases the value of removing these artillery systems from the battlefield in the most expeditious manner possible. Proactive counterfire, in the form of deliberate targeting, should be the most important part of that process. However, given the prominence and role of artillery formations in our competitors' armies; the emphasis they are placing on mobility and survivability in their modernization strategies<sup>4</sup>; and the likelihood of a contested air domain, it would be dangerous to presume that joint targeting alone is up to the challenge. Considering its other operational and strategic priorities, joint assets will be limited at the tactical echelon, especially at the onset of a crisis, where adversaries will seek to translate near-term tactical victories into operational and strategic fait accompli. In the interim, joint assets may prove insufficient to change the correlation of forces to such a degree that friendly ground troops can retain freedom of maneuver and the initiative. In light of this, the ground force must be equally adept at delivering an effective counterpunch at the tactical level

to stave off a potential operational defeat. Logically, this environment should necessitate a review of our perception of risk and perhaps a re-evaluation of our methods of articulating that risk in time and space across the joint community.

### LIVING IN THE “ZONE OF DISCOMFORT”

Over the past 20 years, the US military has focused efforts on dealing with limited-war and combating violent extremism in its many forms. This environment lent itself professionally and socially to a culture of risk avoidance across the force and within American society. This theme was reinforced by the military itself, which perpetuated an idea that wars could be antiseptic in their execution, with limited collateral damage among civilians, and reduced loss of life amongst combatants. With the development of the 2018 National Defense Strategy and the recognition of enduring near-peer competition, this dynamic is changing. America, its military, and its Allies

are slowly waking up to the realization that threats to our way of life persist and may one day have to be dealt with. Despite this new awareness, the implications of this reality remain difficult to come to terms with operationally. A former G3 of US Army Europe once succinctly put it, "We have to get used to living, training, and fighting in a “Zone of Discomfort”. A condition he described as being at the nexus between our experience of fighting wars without existential threats, which allowed the military to prioritize 'risk to force' above nearly all other considerations, and the need to adapt our way of thinking to accommodate the new operational reality where the risk to mission has increased exponentially for all. This can be illustrated using the rudimentary model below (Figure 1), in which the joint force risks mission failure if its 'risk to force' is not appropriately balanced with the actual threat, which may or may not align with its perception of that threat (depicted in red). At one end of the spectrum, representing our historical environment,

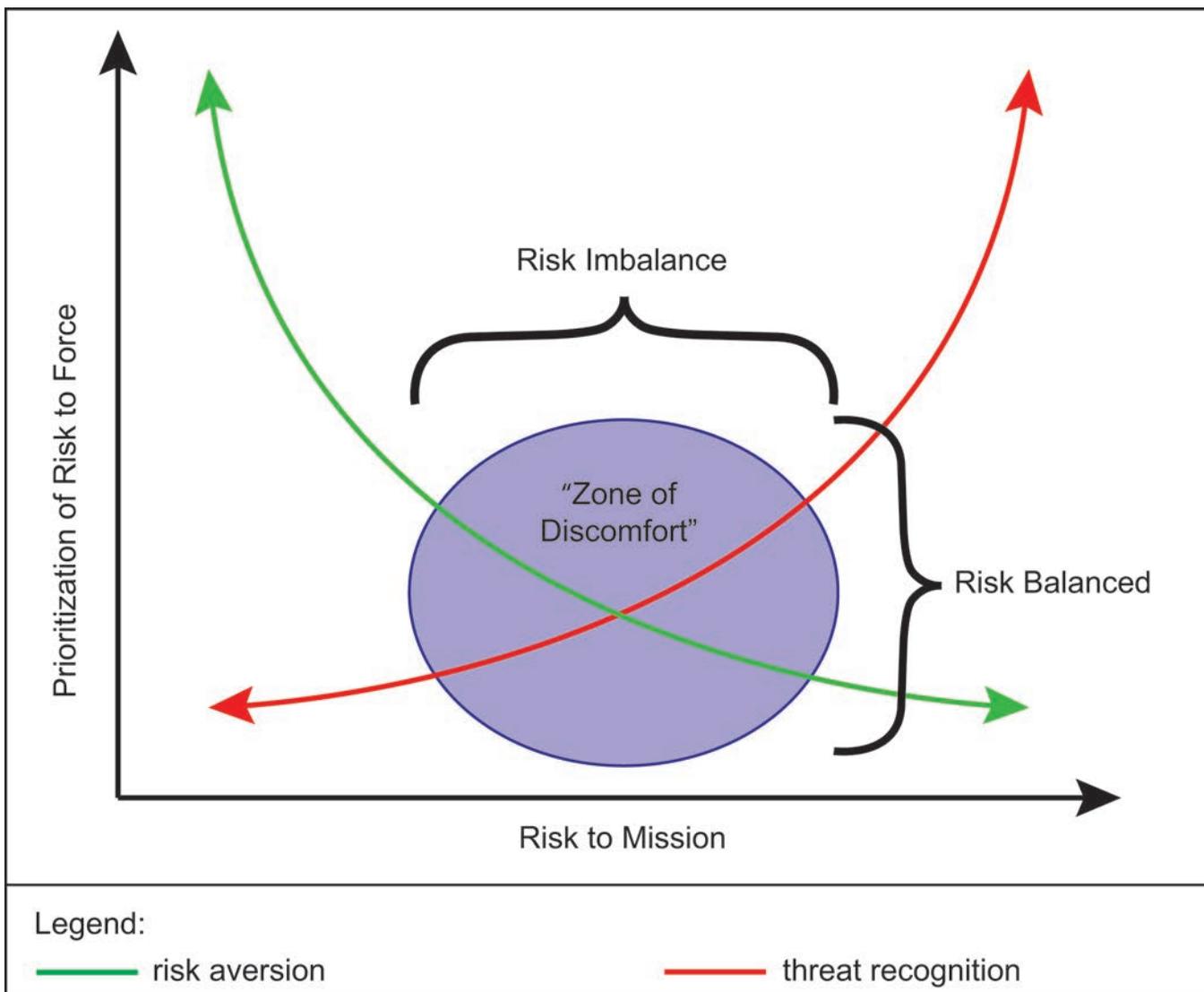


Figure 1. Risk Acceptance Model

behavior is almost universally and understandably, risk-averse. Likewise, on the other end of spectrum, when the threat is fully recognized as existential, decision makers will undoubtedly accept a much higher degree of risk. However, short of that, the leaders are much more susceptible to inappropriate levels of risk aversion based on perceived risk, which may not accurately be reflected in the environment.

Within the "Zone of Discomfort", leaders must decide whether to accept greater risk to force than they normally would, based on a perceived degree of mission risk; or conversely, risk mission failure based on self-imposed constraints that inhibit potentially high-risk/ high-payoff actions. To further complicate matters, as we assess risk in the multi-domain environment, leaders will have to make difficult decisions about what truly constitutes a risk to joint missions worthy of a corresponding risk to joint forces.

Counterfire is a perfect example of this type of risk conundrum, as it juxtaposes the survival of a land force formation against the potential risk to an

air based capability. Living in this reality may require a pragmatic quantitative 'sabermetrics-style' approach to risk analysis which weighs the potential cost of a joint asset(s) (its capabilities and future value) against the corresponding loss of another formation in pursuit of the joint force commander's objectives and elevates the thinking of tactical-level leaders to operational and strategic effects. This idea, strikes at the heart of the concept of 'acceptable level of risk' by begging the question, "acceptable to whom and for what?" It further demands that we ask, "What must be conceded jointly to accommodate the risk requirements of all?"

### BUYING DOWN THE COST OF JOINT RISK

During military operations, risk is a constant in the environment. The challenge for the joint force is how to balance and reduce the risk on the friendly side, while simultaneously transferring that risk to the adversary. This suggests that in the context of imposing risk on the enemy through counterfire, a decision to fire without regard to airspace, transfers most of the risk associated with that activity on the friendly

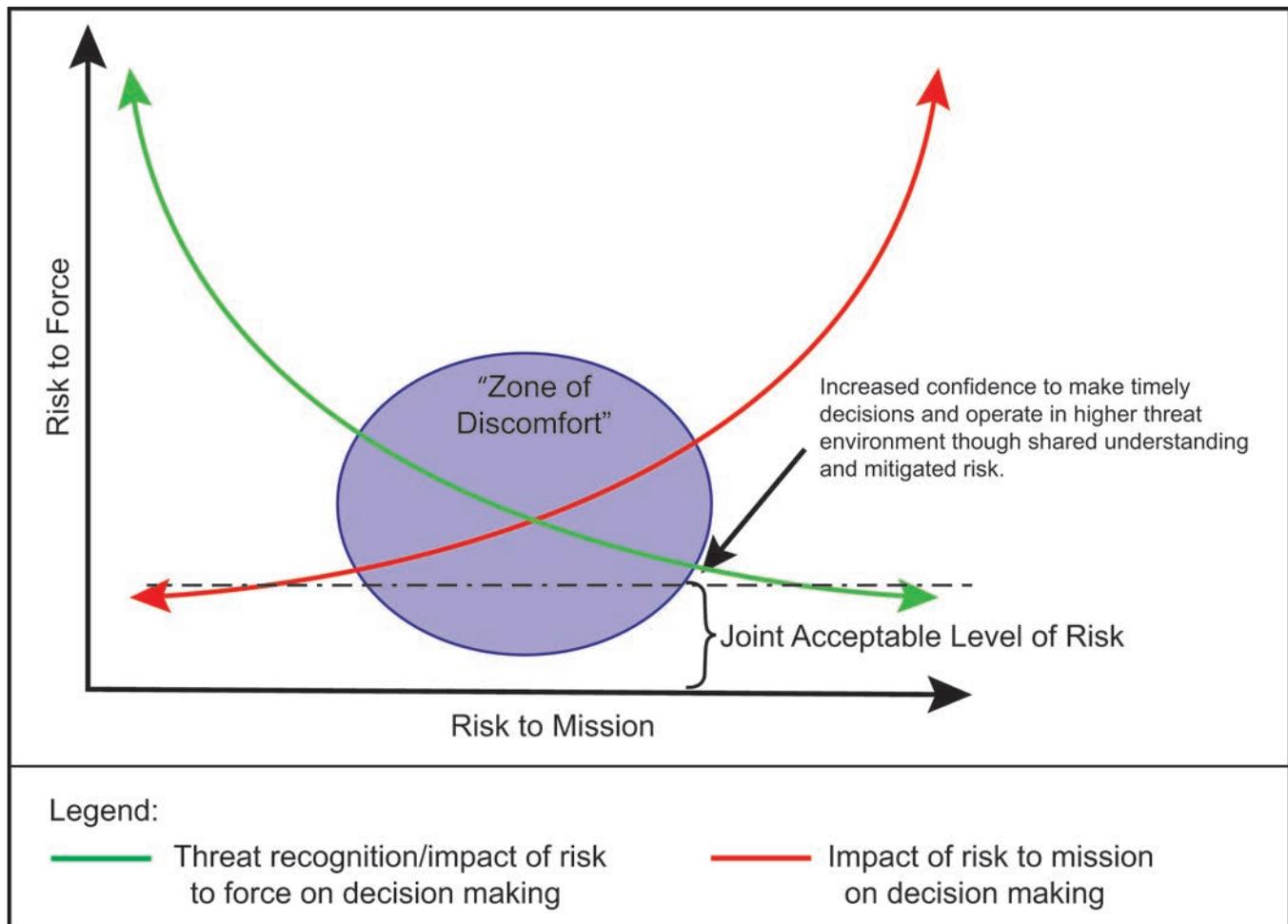


Figure 2. Risk Acceptance Model with Joint ALR Floor

side to the air component. Likewise, a decision not to fire places all risk on the land component. On its surface, this may be acceptable in certain circumstances. One of the ideas underwriting 'supporting/supported relationships' in joint doctrine is that one component assumes more risk (supporting) during a given operation, thereby decreasing risk for another component (i.e. the supported/main effort) which is responsible for the accomplishment of the mission.

From a quantifiable standpoint, the correct decision in this situation would be an equation that calculates and compares the likely percentage of catastrophic effects for the present and future value of each force and their relative missions. However, since future value of losses across the tactical, operational, and strategic levels of war are inherently difficult to know, this cannot easily be done. This simplistic approach, which essentially is the idea behind 'big sky little bullet', does not hold up under scrutiny and all possible methods should be taken to reduce the likely percentage of catastrophic loss across to the joint force through mitigation measures up to the point of diminishing returns relative to the mission. These mitigation measures constitute a joint acceptable level of risk, essentially creating a 'floor' for the "joint risk to force" and enabling confidence for decision-makers on all sides operating within the "Zone of Discomfort".

### **ESTABLISHING THE "FLOOR": CURRENT AND FUTURE MITIGATION FOR COUNTERFIRE**

To get to the edge of the "Zone of Discomfort", the services need to take a comprehensive approach to risk mitigation that includes evolving our doctrine, organizations, material, and training for the future; while employing our existing methods and capabilities up to the limits of their effectiveness right now.

On the land side, this means commanders who use airspace, at all echelons, must hold their formations accountable for the development and distribution of robust unit airspace plans. Army commanders would never accept a ground-based scheme of maneuver that was not accompanied by graphics and should rightfully extend that same attitude toward ensuring the organization of their battlespace in the vertical dimension. This is the plan from which later actions and activities, including the assumption

of risk, should derive. Once established, the risk must be constantly and deliberately managed, based on the progress of the battle, and emerging opportunities, threats, and requirements. Deliberate management implies the proper delegation of authorities to actively manage airspace within the commander's intent. It also suggests the formation of processes and systems, such as an airspace control working group or similar battle rhythm event nested within the targeting cycle of the associated headquarters, to ensure that those delegated with airspace integration authorities are enabled with the most comprehensive appreciation of the situation possible.

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**Airspace requirements and the implications of all sensors, shooters, and consumers of airspace across all warfighting functions must be considered and incorporated into planning.**

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Airspace requirements and the implications of all sensors, shooters, and consumers of airspace across all warfighting functions must be considered and incorporated into planning. Like most integrated processes this is not the sole responsibility of the airspace officer but a collaborative effort amongst the staff. In doing so, subordinate commands can identify aspects of the plan that increase complexity and the risk of fratricide and look for alternatives that minimize the use of available airspace and improve air-ground integration while accomplishing the same effects. An example of this might be; conducting artillery raids to strike targets that might otherwise require long-range ammunition and painstaking coordination with multiple air control elements. Once the plan is published, elements of the theater air-ground system should use the available time to rehearse the activation, deactivation and modification of airspace control measures integrated in the combined arms and technical rehearsals with our digital systems across the joint force.

On the air side, beyond fielding and equipping the appropriate subject matter experts and liaison officers at the various Army command posts to enable integration, this environment means stricter



Soldiers of 210th Field Artillery Brigade, 2nd Infantry Division/ ROK-US Combined Division, conduct operations in a simulated chemically contaminated environment during a combined counterfire exercise at Thunder Field, Camp Casey, South Korea, January 27, 2016. (Photo by CPL Jaewoo Oh, USA)

adherence to procedural control when operating in close proximity to friendly ground troops. At the wing level, it also means closer coordination with ground liaison officers and greater awareness of where the counterfire fight is likely to occur.

From a training standpoint, air control elements and Army command posts should have enduring relationships which build trust in each other's processes and systems. It is this enduring relationship that will engender confidence to act in an inherently risky environment. History has shown that this happens organically in combat over time, but it is in the early stages of an operation where errors or miscalculations occur, and the components are inherently risk-averse. To achieve a 'graduate-level' discussion on risk acceptance between the services, air-ground integration planning and active airspace management is something that must be developed through realistic progressive training. This begins with common individual education and academics, achievable through courses like the joint firepower course, echelons above brigade airspace course, and joint air operations command and control course. However, this

education is just the baseline, confidence can only be achieved through joint collective training conducted regularly at echelon. The most effective training of this kind will utilize as many components of the theater air-ground system as possible.

As a vignette to articulate how this battlefield framework has evolved and how some organizations have embraced the need for greater joint integration, we can point to the recent experience of the 1st Armored Division Artillery in organizing the counterfire fight during warfighter 21-04. During this exercise, 1st armored division, enabled by the 7th air support operations squadron's ASOC, executed counterfire operations leveraging a joint air-ground integration center which had conducted numerous joint collective training events in the lead up to the warfighter. This training included several weeks of specialized joint air-ground integration training at Hurlburt Field, Florida, home of both the Army Joint Support Team and the 505th Command and Control Wing. As a result, counterfire times below the coordinating altitude (CA) were significantly lower than historical averages, even while airspace remained actively managed and

procedurally controlled by the ASOC. While not every fire mission below the CA required ASOC active deconfliction, the acceptable level of risk remained low because intelligence preparation of the battlefield had effectively identified the most likely areas in which the counterfire fight was expected to occur, and unit airspace plans (cognizant of those high-risk areas) had prevented aircraft from straying into those hazard areas. This allowed the division's organic fires to regularly engage targets based entirely on technical means through the Army mission command systems. Essentially, if the machine did not indicate a violation of a fire support coordination measure or airspace control measure, the division artillery shot. Ultimately though, this degree of integration was possible, because the ASOC was willing to accept risk on behalf of the air control authority that an incident was unlikely to occur, based upon the situational awareness they had achieved, their familiarity with the organization, and their confidence in the procedures they had established and trained on alongside their Army partners.

### **MODERN PROBLEMS DEMAND MODERN SOLUTIONS**

While an underlying bedrock of trust between the services will always be important to joint operations, our challenges to improved domain integration should look for doctrinal and material solutions as well. From a counterfire standpoint, to reduce risk and create more latitude for joint maneuver the services need to work together on improving the theater air-ground system/ Army air-ground system and design a mechanism for the dynamic automated positive control of airspace. The advanced battle management system (ABMS), currently being experimented with by the Air Force, which seeks to link all sensors, shooters, and C2 nodes could be part of that solution. Utilizing artificial intelligence and with all sensors, shooters, and controlling agencies linked, the joint force could create a digital system analogous to a "Fokker's Interrupting Gear" for controlling indirect fire. This system would replicate the machine gun mechanism of early 20th century aircraft that allowed the weapons to fire forward from the cockpit, between the spinning blades of an aircraft, while in flight. In a modern context, with better awareness of the relative positions of aircraft, artillery, and weapon characteristics, ABMS, in collaboration with Army fire control systems, could deconflict airspace

seamlessly without human involvement. Fire/ no-fire criteria could be measured in milliseconds by technical means. However, to achieve this, ABMS must be prepared to deal with the scale and complexity of Army airspace requirements and that requires extensive Army support to ABMS development. If the services work together on development projects such as this, which enable joint domain integration, instead of within organization stovepipes, the results will ultimately yield a reduced risk profile and more timely solution.

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### **THE WAY AHEAD**

Recent events in Ukraine and elsewhere has shown that the joint force cannot assume that it has the luxury of time to arrive at the perfect solution to the challenge of responsive counterfire. The joint team must become better at utilizing the imperfect methods it has today to accomplish the mission in large-scale combat operations and survive in the "Zone of Discomfort" while coming to terms with risk acceptance. To bridge the gap between the current situation and the desired end state of dynamic positive control, the military will require greater investment in air-ground integration across a breadth of areas. From a training perspective, this means more training for the commanders and staff of all services, with greater emphasis on airspace management and its importance at lower echelons. From a doctrinal perspective, it means assessing whether the existing procedures and vocabulary are sufficiently clear to enable joint understanding, or whether near-term refinement is necessary. From a manning perspective, it means recruiting and retaining more airspace/battlespace managers and fielding more liaison officers across the joint force. From a material perspective, it means prioritizing the acquisition of interoperable modernized command-and-control systems that will enable situational awareness and decision making. And further, as the military looks more broadly, from a policy perspective, it will mean engaging in difficult conversations with Allies and partners about invest-

ments they should likewise be making alongside us so that we can work together jointly. These investments, and others, will be money and time well spent and will go a long way toward filling the gaps in our approach to joint operations and meeting the enduring requirement for a responsive counterfire capability.

Perhaps most importantly, beyond the example of counterfire, from a philosophical perspective the lethality of the modern battlefield suggests that a reexamination of how the joint force addresses risk in large-scale combat operations is necessary. We must recondition our warfighters to think outwardly in terms of accepting prudent risk to the joint force and their collective mission, while remaining mission focused on both the current and future fights of their formations. To reinforce this, we could incentivize prudent risk taking in exercises by rewarding decisions which seek to more fully integrate tactical airspace while punishing risk-averse behavior within the context and capabilities of the threat. The force could also take steps to desensitize aircrews and air staff to operating in proximity to surface-to-surface fires by conducting more live, constructed, and virtual joint training. It is not beyond our capacity to accomplish this, but operating in this new hyper-lethal, hyperactive, hyper-complex environment will require a greater understanding of each other's challenges, closer cooperation in addressing joint shortfalls, and facing joint risk in a joint way.

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## END NOTES

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<sup>4</sup> "PCL-181 Brings Great Improvement for PLA Artillery Troops" *China Military Online* May 07, 2020, <https://www.defense-aerospace.com/articles-view/release/3/211106/china-touts-new-truck-mounted-155mm-sp-howitzer.html>

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<sup>6</sup> Kaushik Patowary, "Fokker's Synchronizing Gear And The Birth of Fighter Planes" *Amusing Planet*, October 16, 2020, <https://www.amusingplanet.com/2020/10/fokkers-synchronizing-gear-and-birth-of.html>

# WINNING THE COUNTERLAND BATTLE BY ENABLING SENSOR-TO-SHOOTER AUTOMATION



An A-10C Thunderbolt II from the 74th Fighter Squadron taxis down the runway during Green Flag-West 17-03 at Nellis Air Force Base, Nevada, January 23, 2017. (Photo by SSgt Ryan Callaghan, USAF)

**By Maj Ridge R. Flick, USAF**

Twenty years of counterinsurgency (COIN) operations in Iraq, Syria, and Afghanistan created a construct where precision fires and low-collateral effects were prioritized. The enemy's detectable signatures (DSIGs) continued to shrink as they learned to evade our intelligence, surveillance, and reconnaissance (ISR) capabilities. In response, the joint force bolstered ISR capabilities with new sensors, platforms, and databases. The tactics, techniques, procedures, and habits from COIN operations create a significant hurdle in preparing for great power competition. However, the ISR capabilities developed in the last twenty years may be the single great advantage the US enjoys.

The majority of ISR assets in the Air Force will not be available for close air support (CAS) or strike coordination and reconnaissance (SCAR) in the next great power competition. However, theater and national-level reconnaissance assets cover large swaths of the battlespace, including the area between the forward line of own troops (FLOT) and the fire support coordination line (FSCL). However, there is

one big problem with utilizing these assets in CAS; the slow and tedious information flow from sensor to shooter. Three factors hinder the ability to utilize intelligence gathered from strategic ISR assets in near real-time: 1) SATCOM downlink time; 2) intelligence processing, exploitation, and dissemination (PED); and 3) information flow from command and control (C2) to the joint terminal attack controller (JTAC) and CAS assets.

Addressing challenges with SATCOM downlink time are beyond the scope of this article; however, intelligence PED and information flow from C2 to the CAS team are worthy topics. In fact, the technologies exist to drastically hasten both processes today. Clever intelligence and operations personnel are exploiting automated intelligence reporting and machine-to-machine communication to solve specific problems within their communities. The combination of the two techniques provides a framework to develop a common operational picture (COP) across the services and improve the efficiency in sensor-to-shooter information flow. Advancing the two techniques to provide capabilities beyond an incremental improvement requires a significant alteration in how

the USAF utilizes its intelligence, surveillance, and reconnaissance operations and datalink experts. This article serves as a call to action for all subject matter experts to pitch in and help build the baseline rules and processes for military automation to succeed in the future.

### **AUTOMATED INTEL PROCESSING, EXPLOITATION, AND DISSEMINATION**

After two years of watching his beautiful intelligence collection plans lead to minimal effects in the battlespace, Captain Alex “Bomb” Milhous, from the 19th Weapons Squadron at the United States Air Force Weapons School (USAFWS), decided to find out why his plans failed. As an intelligence professional, “Bomb” looks at a kill-chain by analyzing the process from the first detection of an enemy system to a bomb, missile, rocket, or bullet achieving a desired level of destruction. For now,<sup>1</sup> the United States Air Force breaks a kill-chain down into six steps: find, fix, track, target, engage, and assess (F2T2EA). After combing through the data from dozens of large-force exercise missions, “Bomb” found individual assets responsible for a portion of F2T2EA rarely failed. However, the time required for information to move from one asset or platform to another could not keep pace with enemy actions.

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The amount of information pouring into a distributed ground station (DGS) is immense. Multiple teams of specialized intelligence analysts perpetually sweep the information for reportable intelligence. Reportable intelligence is information that meets specific criteria established prior to an operation or mission. As an example, Russia having an SA-17 surface-to-air missile system is just information. A satellite imaging of the SA-17 site this morning and having Category 2 coordinates for the location is reportable intelligence. In order to go from information to reportable intelligence, the DGS members process all the information, exploit the information meeting reportable criteria, then forward the intel-

ligence to command and control for dissemination to the pertinent ground and air players. The system of processing, exploiting, and disseminating intelligence is called PED, and you’ll regularly hear the term “PED team” in intelligence circles. The PED team essentially works hand-in-hand to turn information into reportable intelligence by cross-cueing multiple streams and/or databases of information. The PED team continually fights through using multiple disparate systems, waiting on other analysts to cross-cue their information, transposing information from one format into another, and rarely sees the final result of their efforts. After all, while typing the intelligence into another system, more information is inbound. Unlike Al Bundy or Uncle Rico, the PED team simply cannot dwell on the past if they wish to influence the future.

The PED of information into reportable intelligence regularly takes dozens of minutes depending on the system used to collect the information and the speed of the analyst. Like any human, analysts sometimes make mistakes while transposing the information from one system to another. Historical data from Weapons School integration exercises show about 30% of the reportable intelligence included some form of error when comparing the information in the database to the information received by the fighter or bomber. If you can’t hear programmers rolling over in their graves right now, you may not understand the value of databased information.

Databased information is extremely useful. Databases allow for custom filtering, sorting, and hiding or highlighting information. However, databased information becomes troublesome when multiple databases contain the pieces of information needed to create reportable intelligence. As an example, an electronic intercept in one database might prove a particular system is in a three-by-six-mile area; but, by most standards, that is just information. In another database, a picture from yesterday might show the system of interest in that area, but someone needs to FIND the system in the picture. Cross-cue is the process to take information and cue other sensors or exploit other information sources to reach reportable intelligence criteria. Right now, cross-cue requires an analyst of one variety to notify other analysts they have information requiring refinement. Then, other analysts must notice the request and begin looking through their information to refine the location of

the system of interest. Cross-cue may also require a different analyst to change his/her current task in order to refine the information to reportable criteria. Cross-cueing is rarely fast and occasionally doesn't happen. Again, people make mistakes.

In an effort to reduce the workload of the analysts at the DGS, "Bomb" began working with the civilian sector on a new process. CACI International developed software called the Multi-INT Spatial Intelligence Toolsuite, or MIST.<sup>2</sup> MIST exists under the Fusion Analysis Development Effort (FADE) program. The combination of the overarching program and the underlying software is commonly referred to as "FADE-MIST." FADE-MIST accesses as many intelligence databases as the user is cleared to access and incorporates a visual interface (think Google Earth). Users can sort, filter, and view a significant majority of all the information available to the intelligence community on a convenient 3D or 2D global projection. The plotting capability alone makes FADE-MIST excellent for creating intelligence products and assessing enemy trends through their playback feature, which allows a user to look at specific informa-

tion collected on a particular day.

WATCHBOX is an additional tool in FADE-MIST allowing users to create a series of if-then logic filters. The if-then logic filters run against multiple intelligence databases to find and extract reportable intelligence. Through selecting unambiguous detectable signatures for specific systems and filtering results to a specific area, WATCHBOX combs the databases for the user. When all if-then logic filters are met, users may select three notification options. Internal to the user's profile, WATCHBOX can send a notification on the app (think Facebook notification on your phone). More importantly, WATCHBOX can send an automated, user-formatted Mardam-Bey Internet Relay Chat (mIRC) message into specific chat rooms.<sup>3</sup> Finally, the user may opt to receive an email.

Once a WATCHBOX logic chain is developed, any other user may subscribe to the results (email or notification). The owner of the chain is the only one able to control the pre-formatted mIRC messages and chat rooms. Current PED processes involve analysts knowing which mIRC chat room is appropriate for the information they have exploited.



Indiana Guardsmen Intelligence Analysts train at Hulman Field National Guard Base, Indiana, October 22, 2019. (Photo by: TSgt Luke Sturm, Indiana Air National Guard)

WATCHBOX allows the room to be predetermined based on the type and accuracy of the information. WATCHBOX also pulls the information directly from the database, so there are no transposition errors from one system to the other. As a notional example, let's look at a mission where the SA-37 surface-to-air missile system needs to be located within the Republic of Merlin.

The first if-then logic filter weeds out all other systems. The SA-37 has multiple *ambiguous* detectable signatures, which means a particular intercept could be the SA-37 acquisition radar, or it could be something completely unrelated like an air traffic control radar. These signals are good for cross-cueing other sensors, but we're going to look at a completely automated example. The SA-37 has a few *unambiguous* detectable signatures, which means those signatures are unique to the SA-37. The unambiguous detectable signatures allow significant automation, as they do not require cross-cue of other intelligence sources to confirm the presence and/or location of the SA-37. Our first filter will focus on finding the unambiguous detectable signatures associated with the SA-37 across all databases. For visualizing the automation, we'll say this filter takes five billion pieces of information and pares the group down to 10,000 pieces of information.

The second if-then logic filter weeds out all pieces of information that don't meet reportable intelligence criteria. In this example, we'll say the mission commander did not want any SAM locations passed to the fighter and bomber pilots unless the fidelity of the location is better than two nautical miles. Applying this filter to our group of 10,000 leaves only 50 pieces of information. These 50 include *unambiguous* detectable signatures for the SA-37 and include better than two nautical mile accuracy.

Finally, the third if-then logic filter is designed to eliminate information that is not in the operating area of the mission. This filter creates a geographic boundary around the Republic of Merlin and removes all information outside of the boundary. After applying this filter, our 50 pieces of information are cut down to five pieces of information that meet all of the "reportable intelligence" criteria set by the mission commander. Now, WATCHBOX pulls the critical data fields out of these pieces of information, populates the pre-formatted mIRC messages,

and posts them into the pre-determined chat rooms. At the same time, USAF, USA, USMC, and USN C2 entities gain situational awareness on the location of the SA-37's in the Republic of Merlin.

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The example above shows the value of automated intelligence reporting.

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The example above shows the value of automated intelligence reporting. It is critical to understand the SA-37 is just one system with a fingerprint made up of ambiguous and unambiguous detectable signatures. Nearly every system on the modern battlefield transmits, leaves tracks, makes a wake, makes noise, or creates some type of signature. As the intelligence community defines a system's fingerprint, new if-then logic filters may be created to "find" the system within the Department of Defense (DOD) ever-growing databases.

As mentioned in the introduction, PED is one of two areas ripe for improvement. The other area is information flow from intelligence agencies through command and control to the tactical edge.

#### **MACHINE-TO-MACHINE COMMUNICATION<sup>4</sup>**

In Korea, the long-range artillery threat posed by the Democratic People's Republic of Korea (DPRK) against the Greater Seoul Metropolitan Area (GSMA) presents a unique challenge to joint targeting. The DPRK utilizes various types of bunkers and tunnel systems to protect its long-range artillery, and trains to shoot and take cover within those protective bunkers. In many cases, the first detectable signature is the enemy artillery round flying through the air, which the US and Republic of Korea (ROK) Army detect via counter-fire radar systems, like the AN/TPQ-53 Radar System (Q-53).<sup>5</sup> Unfortunately, due to the limited signatures associated with a vehicle driving out of a bunker, the required timeline for a successful engagement against a DPRK artillery system is extremely short. However, the Q-53 feeds the Advanced Field Artillery Tactical Data System (AF-ATDS), which allows rapid dissemination of targets across the Army fires platforms.<sup>6</sup> When Army artillery units are within range, it is only a few minutes from the Q-53 locating the enemy firing position to

friendly rounds raining down. When Army artillery units are not in range, the *fires cell* passes the targeting information up to higher headquarters for relay to Air Force C2, who passes the information to the nearest untasked fighter. In practice, the manual passage of the information regularly exceeds 20 minutes and cannot keep pace with the most liberal associated timelines.

In order to shorten the kill-chain, A-10C pilots from the 25th Fighter Squadron and artillery officers from the 210th Field Artillery Brigade developed a system called the Automated Tactical Targeting and Counter-fire Kill-chain System (ATTACKS). Despite the corny homage paid to the Warthog in the acronym, the system is brilliant.

AFATDS uses variable message format (VMF) and the message types are all various “K-series” messages. As an example, a fire mission, which is typically a transmission made to target the enemy with artillery, can be sent over AFATDS as a K02.4. There are hundreds of other message types in VMF, but that’s not important. The Air Force’s primary datalink is Link-16. Link-16 speaks in “J-series” messages. As an example, a pilot in a Link-16 equipped aircraft can “show” what they are targeting by transmitting a J12.6, which other Link-16 equipped aircraft can see. Again, hundreds of message types are available in Link-16, but that’s not important either. The important part is that Link-16 and AFATDS can’t talk directly to each other due to differences in the message formats. All messages going from one datalink structure to the other require a person to transpose information or a machine-to-machine translator.

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Humans are inherently worse at transposing information than machines.

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In both methods, either a human or a machine pulls the data fields out of a message in one format, plugs them into the data fields of a message in a different format, and sends them to the entire network, or a specific address. Humans are inherently worse at transposing information than machines. We make mistakes, get distracted, and certainly can’t type as fast as a machine can “think.” To avoid human transposition delays and errors, a particularly clever

A-10 instructor pilot, Captain Benjamin “TOD” Baumann, leveraged a relationship with the Sierra Nevada Corporation, which makes the Tactical Radio Application eXtension (TRAX).<sup>7</sup> TRAX enables machine-to-machine communication by translating over two dozen different message formats (more in development). “TOD”, in conjunction with an Army Fires Center of Excellence graduate, defined the specific Link-16 messages they wanted to automatically translate into AFATDS messages, and vice versa, then sent their information exchange requirements (IERs) to Sierra Nevada. Within a few weeks, “TOD” installed a new, prototype version of TRAX in Korea and began testing to refine the message translations and user interface of the software. In a few months, the 210th Field Artillery Brigade and 25th Fighter Squadron completely automated the process of passing specific Q-53 target data from AFATDS into Link-16, including formatting the Link-16 messages to convey the accuracy of the radar’s target data.

In addition to moving information from AFATDS into Link-16, the team in Korea worked with Sierra Nevada to enable moving information from Link-16 into AFATDS. Now, when aircraft identify a target within range of friendly artillery but lack the weapons to engage, the pilot is able to digitally send targeting information directly to the brigade fires cell.

The advances made in Korea represent a significant improvement in the counter-fire kill-chain across services. The process of defining information exchange requirements and utilizing message translation to enable machine-to-machine communication creates a template to shorten thousands of kill-chains in every area of responsibility.

## **COMBINING MACHINE-TO-MACHINE (M2M) COMMUNICATION AND AUTOMATED INTEL REPORTING**

M2M communication and automated intelligence reporting seem unrelated. However, just like AFATDS uses K-series message formats and Link-16 uses J-series message formats, automated intelligence reporting uses text message formats. The process of pulling data fields from one message type and plugging them into another is not format agnostic; however, the mIRC messages created by WATCHBOX are designed by pulling data fields from ISR sensor data. The messages are also designed in a standard format.

Leveraging Capt Baumann's contacts at Sierra Nevada, I worked with the TRAX programmers to create a standard mIRC message format to enable translation into J-series and K-series messages. When WATCHBOX creates an automated intelligence report and sends a mIRC message to command and control, it also sends another mIRC message to a chat room TRAX is monitoring. Using the standard mIRC message format, TRAX pulls the data fields required for J-series and K-series messages, and depending on the type of system and fidelity of the information, TRAX publishes the information into Link-16 and AFATDS.

Combat Air Force close air support working group at the 2021 weapons and tactics conference focused on improving surface-to-air and air-to-surface target transfer. During one day of the conference, the group focused on shortening a particularly difficult kill-chain. Using the same machine-to-machine communication techniques developed in Korea, the group was able to shave about 5 minutes off the timeline, but the enemy system still survived. Incorporating automated intelligence reporting shaved another 20 minutes off the timeline and enabled advanced exploitation techniques not available through standard datalink classifications. Once we integrated machine-to-machine communication with automated intelligence reporting, the entire kill-chain shortened by 30 minutes. Again, shortening one kill-chain is a small step forward. The process of educating tactical experts on the use of automated reporting and M2M communication, then cutting the experts loose to shorten a kill-chain is a giant leap.

## THE WAY FORWARD

M2M communication and automated intelligence reporting provide incremental improvements when used alone. Combining the two techniques significantly shortens a kill-chain. In order to fully harness the existing architectures, databases, datalinks, and communication pathways in the DOD, tactical experts need education on how to leverage new software and computer processing technologies. Once educated, experts from each area of responsibility need to make a concerted effort to sit down together on a regular basis. At the table, educated experts need to work down the joint prioritized target list with a laser focus on shortening each kill-chain. The focus cannot stay on widgets and gadgets to find things faster or

track them better. The focus must shift to the specific tactics, techniques, and procedures to move information *between* the widgets and gadgets comprising the kill-chain. Technology allows for faster information flow today, but smart intelligence professionals, operators, and controllers need to pitch into the fight with their expertise and minds open to new ways of doing business. If-then logic filters and digital translators are only as smart as their creators. To shorten thousands of kill-chains, we'll need a few hundred clever creators.

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## END NOTES

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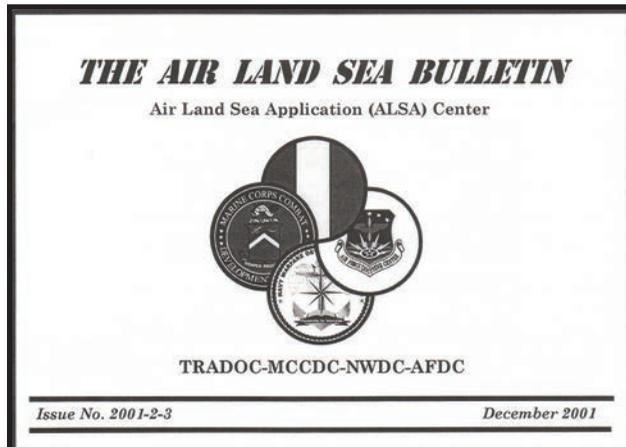
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# BLAST FROM THE PAST



## CLOSE AIR SUPPORT AND THE DIGITIZED DIVISION - AN AIRMAN'S PERSPECTIVE

**Editor Note** – Originally published in 2001, “Close Air Support and the Digitized Division” describes using then-newly fielded technology to increase lethality on the battlefield during large-scale combat operations. We must focus on reducing the time required to identify and destroy targets on the modern battlefield by combining mental and physical agility. The enhanced digitalization of battlefield information allows the military to employ superior combat skills rapidly and decisively to dominate the battlefield

**By Maj Douglas R. Putney, USAF**

A US Army mechanized infantry division advances and engages a motorized rifle regiment, a tank brigade, a divisional artillery group, and a rocket artillery group in-depth. In the close fight, an Air Force Tactical Air Control Party (TACP) talks a two-ship of Air Force A-10s onto enemy armor in close proximity to friendly ground troops with no fratricide. Despite the friction of battle, the TACP maintains remarkable situational awareness of both friendly and enemy troop locations. The battalion air liaison officer (BALO) deconflicts fires and coordinates suppression of enemy air defenses (SEAD) through the battalion fire support element.

As night falls, Joint Surveillance Target Attack Radar System (JSTARS) locates and tracks the enemy's second echelon forces. The division G-2 uses JSTARS data to cue an unmanned aerial vehicle (UAV) to verify high-value targets. The division launches its deep attacks using attack aviation, close air support (CAS) aircraft, and fire support assets. 155-mm artillery and Multiple Launch Rocket System (MLRS)

fire en route and target area SEAD in support of the deep attack. The division air liaison officer (ALO) is sitting between the division fire support coordinator and the aviation liaison officer in the division tactical operations center (DTOC). Together they are able to monitor and assist the joint air attack team (JAAT) operations. Air interdiction (AI) sorties are attacking centers of gravity in the enemy rear while the plans ALO in the DTOC is working with the targeting cell to plan the next deep attack and to refine AI target nominations for the next three air tasking order (ATO) cycles.

The effects on the enemy commander's scheme of fire and maneuver are devastating. Before he can engage US forces with direct fire weapons, significant portions of his maneuver units are rendered combat ineffective by indirect fire and air attack. With no safe haven, he is confused and overwhelmed. His adversary seems to know the disposition of his troops better than he does. How can US forces act faster and more decisively than he? How can US forces mass their fires so quickly? The synergistic effects of US air

and land power shape the battlespace in-depth providing insurmountable dilemmas for the enemy commander.

Is the above scenario from a Tom Clancy novel? At the 4th Infantry Division Mechanized (4ID[M]), this scenario is becoming a reality thanks to Force XXI and a new generation of command and control (C2) equipment. The Army Battle Command System (ABCS) allows all echelons from tactical to strategic to share more relevant information in near real-time. This is an exciting time for 4ID(M) and the 11th Air Support Operations Squadron. We are working to develop tactics, techniques, and procedures (TTP) to use with this new generation of C2 tools to dominate the battlespace.

ABCS is composed of the Army Global Command and Control System (AGCCS), the Army Tactical Command and Control System (ATCCS), and the Force XXI Battle Command Brigade and Below System (FBCB2). AGCCS modules interface with shared components of ABCS and with the joint applications on the Global Command and Control System (GCCS). ATCCS's infrastructure systems are

composed of the Maneuver Control System (MCS), Advanced Field Artillery Tactical Data System (AF-ATDS), All-Source Analysis System (ASAS), Combat Service Support Control System, and Air and Missile Defense Work Station (AMDWS).

These modern digital tools do not replace the need for a thorough understanding of the basic skills of our military profession but enhance our ability to apply those skills for decisive operations. Let us explore how the ALO, TACP, the aviator, and their Army counterparts will use the capabilities of ATCCS and FBCB2 to plan, prepare, execute, and assess military operations. It is our ability to perform these tasks better and faster than our enemy can that is the key to dominant maneuver and decisive victory. Coordinated air and land operations enable us to maneuver, shape the battlespace in-depth, and reduce the manpower and material cost in the close battle.

#### **PLAN**

In the planning phase, we turn the commander's intent into a scheme of maneuver to achieve the desired end state. The ALO and the ground commander must determine how the unique effects of



Tankers with Alpha Company, 2nd Battalion, 116th Cavalry Brigade Combat Team, conducts platoon live-fire gunnery qualification at the Orchard Combat Training Center, Boise Idaho, February 4, 2019. (Photo by 1st Lt. Robert Barney, Idaho Army National Guard)

airpower can shape the battlespace and enhance the scheme of maneuver and surface fires. Accurate information is key to planning. We have to know the enemy's current situation and projected course of action before we can plan our maneuver to defeat him. There are a number of intelligence, surveillance, and reconnaissance (ISR) assets in use today that can accurately locate and identify targets by use of visual, infrared, synthetic aperture radar, or other electronic means. In the past, the data from these assets were limited to echelons above the actual combatants and required relay down through consecutive levels of command. Timely access to these ISR products is vital to the intelligence preparation of the battlefield and course of action analysis.

## **PREPARE**

In the preparation phase, we orchestrate the elements of fire and maneuver in time and space. It is here that the details are addressed. In the past, the complexity of this preparation and detailed integration took valuable time. There was a tradeoff between effectiveness of fires, safety, and time. Now coordination can be done in minutes using ATCCS without a penalty in effectiveness or safety.

To assist in preparing shaping operations, the division ALO at the Division Tactical Attack Center (DTAC) and the brigade ALO at the Brigade Tactical Operations Centers now have access to the JSTARS picture and the organic UAV picture to help detect and then cue aircraft to high-payoff targets. The DTAC and the DTOC also have the entire suite of ATCCS to provide ready access to current situation reports, intelligence, and contact reports that assess enemy strength and movement, as well as the status of friendly forces. In short, members of the combined arms team share a common relevant tactical picture of the battlespace to facilitate coordination.

The airspace above the battlefield is a joint medium traversed by manned and unmanned aircraft as well as rockets and artillery shells. To prevent fratricide of friendly air assets, timely and detailed integration is required as fires shift in time and space. ATO and airspace coordination order information is now fed from the Theater Battle Management Core Systems to AFATDS for dissemination throughout the ATTCs architecture. Airspace coordination measures are used to provide a degree of protection for CAS aircrews from friendly surface and air defense fires

both in the target area as well as during ingress and egress.

Airpower is applied in concert with maneuver and surface fires and airborne assets to maximize the effect on the enemy. CAS aircrews rely on surface fires to provide en route and target area SEAD. AFATDS integrates, automates, and facilitates fire support operations and planning. AFATDS processes information for all fire support assets, cannons, missiles, attack helicopters, air support, and naval gunfire. Fire missions, fire support control measures, and airspace control measures can be turned on or off more quickly throughout the division, giving the enemy less time to recover and react while still providing a high degree of protection from friendly fires and enemy air defenses for CAS and Army attack aviation aircrews.

## **EXECUTE**

In the execution phase, we conduct and monitor operations. Situational awareness and relevant information are the keys to the coordination of CAS, the deconfliction of artillery, and the prevention of fratricide. In a nonlinear battlespace, as experienced in Kosovo or in urban terrain, the ability to engage targets accurately and in close proximity to friendly forces and noncombatants is a required capability.

The TACP now has FBCB2 to provide real-time situational awareness and C2 through a shared common picture of the battlespace. FBCB2 graphically displays identified enemy and friendly unit locations. To enhance situational awareness, a current division TTP is to attach FBCB2 equipped vehicles to non-digitized US and coalition units assigned to support the division. Non-digitized units on the flanks must give accurate front-line traces or update their internal MCS to provide corps situational awareness. This information allows the commander to bring indirect fires and airpower to bear on the enemy with less risk to friendly forces.

Improving the execution process and engagement of time-sensitive targets involves improving both the sensor-to-shooter link and the shooter-to-shooter link to facilitate varying degrees of direct and indirect control of CAS. ISR assets allow us to accurately locate and identify high-value targets, and the newer generation of weapons give aircrews the ability to accurately strike a variety of targets with appropri-

ate effects. The ability of the TACP and the aircrew to share information during execution is also improving. Presently, the majority of TACPs have only voice communication with the CAS aircrew. Some aircraft and TACPs are equipped with Situational Awareness Data Link and Improved Data Modem that allows some digital data to be passed. We need an enhanced ability to send the UAV picture with text and graphics to the CAS aircrew. It is datalink that will allow both the TACP and the aircrew to see the same information at the same time, thus reducing the "fog of war" and the possibility of fratricide while still achieving the desired weapons effects on the battlefield.

## ASSESS

Accurate and timely battle damage assessment (BDA) is a key element in shaping the battlespace. Our ability to quickly assess battlefield effects allows us to rapidly adjust surface fires and flex airpower to decisive points. BDA reported by the aircrew and TACP are forwarded via voice and datalink to Air Force and Army intelligence channels. Organic ISR assets such as the UAV at the brigade level provide near real-time BDA. These ISR assets and those at division level and above are tied into ASAS to provide automated intelligence processing and dissemination. The gathering, fusion, and dissemination of accurate BDA allow us to accurately assess effects, then adjust SEAD and shift airstrikes by planning, preparing, engaging, and assessing again.

## CONCLUSION

Emerging command, control, communications, computers, intelligence, surveillance and reconnaissance, and weapons technology are outpacing current doctrine and tactics. The 4th Infantry Division, as the first digital division, will be able to dominate the 21st-century battlefield by combining mental and physical agility. Now, 4ID(M) can plan, prepare, execute, and assess operations faster than an opponent. The division commander will be able to mass the effects of his enhanced systems without having to mass forces. We have the ability to rapidly, seamlessly, and decisively employ airpower in concert with surface fire and maneuver units to shape the battlespace in-depth and win.

Today, the US is developing the aerospace expeditionary force and the initial brigade combat team in an attempt to field forces that are lighter, leaner,

and more easily deployed while still providing effective and appropriate combat power. As our heavy ground forces get lighter and reduce organic artillery assets, this seamless integration of airpower into the ground scheme of maneuver and fire is a must, if we are to employ decisive synergistic combat power.

The ALOs and TACPs of the 11th ASOS in concert with their counterparts in 4ID are working to develop TTP to take advantage of the tools provided by Force XXI and TACP modernization initiatives. In the past year, we worked together in brigade, division, and corps-level wargames and command post exercises to streamline and enhance our planning and targeting processes to take advantage of this quantum leap in C2 technology. Then, we took our ATCCS equipment and our TTP to the National Training Center at Fort Irwin, California, and tested them in field conditions. Have we developed the best TTP for the new technology? Short of real battle, only open and honest discussion with and between the ALO, TACP, aircrew, and our Army counterparts, combined with realistic exercise and simulation, will tell. What we have found is that digitization does not give us superior combat skills. Digitization allows us to use our superior combat skills rapidly and decisively to dominate the battlefield.

**At the time of this article, Lt Col (then Major) Douglas "Duster" Putney was assigned as an Air Liaison Officer to the 4th Infantry Division (Mechanized), the Army's first digitized division. The B-52 IEW and then B-1B IWSO later served as the Chief of C2 Systems Integration at HQ ACC. After submitting the article, he deployed to Afghanistan in 2002 with 10th Mtn Div and then went on to teach at the Air Ground Operations School at Nellis AFB. He deployed to Iraq in 2003 with 101st Aviation Brigade, conducting deep attacks in the Karbala Gap. He retired in 2005 for 90 days and then was brought out of retirement to work for the Air Force Doctrine Center for another 6.5 years. He retired the second time with 28 years in uniform. As a defense contractor, Lt Col(R) Putney was a senior military analyst and instructor for the Joint Operational Fires and Effects Course at Fort Sill, OK.**



## FAILING FORWARD DISAGGREGATED COMMAND AND CONTROL IN STRATEGIC COMPETITION

Airmen work in the 618th Air and Space Operations Center (Tanker Airlift Control Center) controlling global mobility operations at Scott Air Force Base, December 16, 2010. (Photo by: Capt. Justin Brockhoff, USAF)

### Lt Col Nathan “Booster” Owen, USAF

Mission command, or mission-type tactics, is the foundation upon which United States military command authority is built. Mission-type tactics are employed by ensuring subordinate commanders clearly understand operational objectives, have the forces to achieve those objectives, and are given the authorities to deviate execution based on tactical advantage.<sup>1</sup> American history repeatedly proves action, even in the absence of clear orders is often more important than delay. One example of mission-type tactics occurred at Gettysburg. On the morning of 1 July 1863, Union cavalry under the command of Brigadier General John Buford recognized the importance of the high ground south of Gettysburg. Despite General Grant’s orders to identify enemy locations and report their whereabouts, General Buford ordered his cavalry to dismount and defend the high terrain. General Buford understood Grant’s orders, but he recognized the tactical advantage of the terrain and its impact on achieving General Grant’s operational objectives thus executing mission-type tactics to secure the terrain

and advantage for Union troops.<sup>2</sup> Whatever autonomy and flexibility commanders are given to execute mission-type tactics, their actions must be enabled by effective command and control structures. As the Air Force aims to create an environment for mission-type tactics to flourish it is struggling to create an effective command and control structure and should revisit past successful models to guide current tactics. One successful example is the deployment of numbered air forces (NAF) during World War II to enable fighter and bomber operations across the European theater.<sup>3</sup> Today, the “lead wing” concept models World War II NAFs and is the best structure for enabling the Air Force’s intent of disaggregated command and control (C2) nodes controlling combat aircraft from distributed deployed locations.

### ENABLING EFFECTIVE C2 IN A LEAD WING

In a return to strategic competition, the ability to quickly maneuver and employ agile combat forces is key to survivability. The United States Air Force continues investing heavily to distribute combat forc-

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## Agile combat employment (ACE) is becoming the Air Force's model for projecting combat airpower

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es through agile combat employment, enable disaggregated C2 nodes, and promote mission-type tactics thereby increasing unpredictability and driving cognitive delays in enemy decision making. Agile combat employment (ACE) is becoming the Air Force's model for projecting combat airpower from multiple geographic locations, thus ensuring survivability through increased targeting dilemmas.<sup>4</sup> The new lead wing deployment model attempts to empower tactical leadership to execute mission-type tactics through the delegation of both command and control authorities.<sup>5</sup> This method enables agility and the continuous employment of combat airpower even if lacking specific orders published through the air tasking order (ATO). Currently, the Air Force has given lead wing commanders authority to conduct mission-type tactics, but these authorities have yet to be met with upgraded C2 capabilities nor the Airmen to effectively C2 lead wing assets in combat operations. Starting in World War II, the lead maneuver unit of the Air Force became the NAF, and NAF commanders conducted C2 of forces through assigned air operations centers (AOC). However, AOCs now reside at the Major Command level effectively removing the primary C2 structure from both the NAF and lead wings. It is time for the Air Force to invest both dollars and manpower into rebuilding effective C2 capabilities within lead wings and across distant areas of responsibility (AORs).

In a bid to rectify a lack of C2 capabilities in lead wings, the Air Force continues to invest heavily in replacing the Theater Battle Management Core System as the legacy software for producing the ATO and airspace control order (ACO). The upgraded software is application-based and meant to be easily accessible which enables continuity of operations by identifying fallback AOCs in the event of crippling cyberspace or kinetic attacks.<sup>6</sup> Investments in cloud computing are meant to enable continuous backup and accessibility of the most current air operations information. Cloud computing enables fallback AOCs, or lead wings to immediately begin controlling current air operations with minimal delay.<sup>7</sup> Additionally, the

Air Force is investing in connecting worldwide sensors in all domains to the Advanced Battle Management System. This system is meant to collect, filter, and distribute information across network-enabled units to provide a more accurate common operating picture to commanders at all echelons of warfare.<sup>8</sup> If successful, this cloud-based network provides the framework for distributed C2 operations and gives lead wing commanders the technology to manage current ATO operations when necessary. Although innovative, a new software solution only solves part of the issue. Lead wings still lack the expertise and manpower needed to control aircraft across vast distances while continuing to generate combat airpower. The Air Force has a readily available pool of experts in its current air support operations center (ASOC) and tactical air control party (TACP) Airmen. These Airmen are extensively trained in integrating joint firepower, controlling tactical aircraft, and enabling joint network connectivity who could quickly be trained to enable disaggregated control of lead wing aircraft using innovative software solutions. These Airmen could direct aircraft to and from appropriate logistical hubs, pass updated intelligence via digital networks, control strikes in defense of friendly bases, and act as a bridge between other Service's maneuver units and lead wing operational planners.

### **REALIGNING TACP IN SUPPORT OF LEAD WING OPERATIONS**

As the Air Force realigns resources against national security objectives, the TACP community is facing extensive changes. Current TACP manpower grew during surge operations in Iraq and Afghanistan, and as the United States shifts focus away from those nations and towards pacing threats the TACP community finds itself overmanned. As the TACP community searches for mission relevancy against near-peer enemies, it has tried to reimagine TACP Airmen as all-domain controllers and has begun pushing a new concept called all-domain control teams. The introduction of all-domain control teams as highly mobile C2 teams with the authority to enable effects across all domains of warfare was meant to support the Air Force's vision of disaggregated C2 nodes. The intent is to enable teams of less than ten personnel, from multiple services and career fields to "command and control functions including defending bases, guiding air campaigns, coordinating humanitarian assistance, or providing support for the U.S. Army. Dozens of

these teams, operating in redundant networks, could provide a survivable means of command and control against adversaries with sophisticated targeting capabilities”.<sup>9</sup> A joint terminal attack controller (JTAC) from the 13th Air Support Operations Squadron described this as allowing the AOC to “fail forward” and enabling all-domain control teams to continue executing the ATO until AOC operations resume. Although novel in concept, the best location for all-domain control teams is with lead wing headquarters where the domain expertise can be integrated with operational planners to better enable effective C2 of current ATO operations. Integrating all-domain control teams with lead wing agencies ensures joint tenets of effective C2 are met while enabling mission-type tactics by preserving unity of command and enabling the AOC to fail forward when needed.

### **JOINT TENETS OF EFFECTIVE COMMAND AND CONTROL**

Current doctrine defines ten tenets to effective command and control. As strategic competition drives the need for innovation, it is important to link advancements in technology with proven doctrine or risk repeating hard lessons learned. It is vital new command and control systems adhere to the joint tenets of command and control as disaggregation and decentralization risk adding complexity and uncertainty to an already congested C2 environment. Although joint doctrine identifies ten tenets to effective C2, those of mutual trust, information management and knowledge sharing, simplicity, and situational awareness are most at risk by disaggregated C2.<sup>11</sup> Isolated teams, distributed across the battlespace, and reliant on satellite or radio communication to maintain situational awareness introduce enormous risks to the tenets of effective command and control.<sup>12</sup>

Agile combat employment doctrine assumes that combat aircraft will effectively converge at a designated time and place to mass firepower in pursuit of operational objectives. To achieve this convergence, the Air Force participates in large-scale exercises such as Red Flag. In fact, large-scale combat exercises are used to qualify combat mission commanders, who are given authorities from the combined forces air component commander (CFACC) to make real-time decisions during ATO execution. Flying mission commanders are only delegated authorities after establishing mutual trust and demonstrating tactical competency. In addition to developing mission com-

manders capable of leading joint air operations, the Air Force also aligns air operations support units with Army maneuver units. The two Services train together, deploy together, and often live on the same installation with the purpose of building relationships and establishing mutual trust to enable the integration of air and ground fires in support of Army maneuver. Mutual trust is a joint tenet of C2, and establishing mutual trust allows units to work cohesively based on expected behaviors developed during routine day-to-day activities and joint training exercises.<sup>13</sup> Although the high tempo of counterinsurgency deployments has broken alignment, current TACP leadership argues new technologies reduce this risk to acceptable levels and are pushing to break alignment of TACP and Army forces permanently. One paper suggests the past alignment model is no longer needed because upgrades in technologies better enable beyond-line-of-sight communications, allow for effective collaboration with other Services, and enable the timely distribution of information to allow a common operating picture across the entire area of operations.<sup>14</sup> Network-enabled communications have grown tremendously, but the lack of aligned forces will quickly lead to a breakdown in mutual trust across the joint force and negatively affect joint C2 of forces. Airmen assigned to support Army maneuver units must remain aligned with the supported unit. As such, airmen assigned to support lead wing C2 should be assigned full time to the supported wing. Mutual trust built from enduring relationships and joint exercises is the best method to ensure integrated joint operations as the Air Force moves towards lead wing operations and disaggregated C2 networks.

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**Mutual trust built from enduring relationships and joint exercises is the best method to ensure integrated joint operations ...**

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The distribution of assets and C2 structures across the AOR enables survivability, but it also complicates the ability to share and manage information. Information management and sharing is a key tenet of command and control which enables enhanced situational awareness.<sup>15</sup> The current theater air-ground

system (TAGS) demonstrates risks associated with poorly networked command and control structures. The Air Force's TBMCS still produces the ATO and ACO using United States Messaging Text Format (USMTF) 2004. These messages are digitally used by numerous joint fires systems to include the Joint Automated Deep Operations Coordination System, the Advanced Field Artillery Tactical Data System, and the Tactical Airspace Integration System.<sup>16</sup> However, each of these systems operates with different versions of USMTF, and therefore, humans must be present to translate messages and ensure the systems execute the intended operation. The inability of joint fires C2 systems to connect and share information degrades situational awareness at each level of command. In a disaggregated C2 structure, the ability to connect with multiple C2 systems across the joint force is vital to building effective situational awareness. Situational awareness is the linchpin to delegating mission command authority to lower echelons. A commander's ability to develop an accurate common operating pic-

ture enables effective decision making and mission-type tactics. A lead wing structure, embedded with personnel from all domain control teams enables the effective building of a common operating picture necessary to delegate, or accept mission command authorities.

Simplicity is perhaps the tenet most at risk with disaggregated command and control nodes, and the deployment of all-domain control teams creates a burdensome layer of control when the Air Force already has established AOCs, lead wings, ASOCs, JTACs, and airborne mission commanders. Currently, joint command and control is achieved through Service-centric units connected to sister Services by digital networks and liaison units. The AOC has an Army battlefield coordination detachment, along with Navy, Marine, Special Forces, and Space Force liaisons to help plan and execute air operations.<sup>17</sup> Each Service's operational and tactical C2 structures rely on liaison organizations to bring Service-specific expertise to



US service members participating in the first VIRTUAL FLAG exercise dedicated to training the Joint Air Ground Integration Center's (JAGIC) command and control work in the the 705th Combat Training Squadron's Distributed Mission Operation Center, Kirtland Air Force Base, New Mexico, August 23-27, 2021. (Photo by: Debora Henley, USAF)

planning and execution processes. These liaisons effectively enable pathways across the Service-specific lanes of C2. Simplicity means limiting the number of C2 units to those necessary for maintaining positive control over deployed forces. Adding an additional C2 structure through all-domain control teams creates an unnecessary layer of control on air assets operating within CFACC airspace, which do not require detailed integration with friendly forces. Therefore, publishing clear authorities for lead wing commanders and airborne mission commanders through rules of engagements (ROE) enables disaggregated C2 without the addition of new controlling agencies. These ROEs enable lead wing commanders to make tactical decisions focused on the commander's intent while bounded by the authorities placed upon him or her. Additionally, the designated mission type brings with it specific authorities defined through doctrine. For example, close air support missions require detailed integration with ground force commanders and require the control of assets by joint terminal attack controllers. Whereas the designation as a strike coordination and reconnaissance (SCAR) mission tells the pilot he or she must check into the AOR with the SCAR mission commander and guides which authorities the aircrew possess. The effective delegation of authorities allows the above controlling organizations to execute mission-type tactics, achieving the Air Force's desired end state.

## CONCLUSION

To best empower lead wings to effectively C2 distributed forces, additional C2 Airmen and networks should be assigned to the lead wing deployment team. The lead wing fulfills the disaggregation of C2 networks and allows for the AOC to fail forward while honoring the joint tenets of C2. The integration of surplus air support operations units as all domain control teams within the lead wing structure provides the manpower needed to enable effective C2 of forces. Instead of trying to build small, mobile all-domain control teams, the Air Force should focus on enabling mission command and promoting mission-type tactics of distributed combat forces through well-equipped and trained lead wings. With these integrators embedded in operational staffs, lead wing commanders gain valuable knowledge on joint C2 systems, service-specific weapons systems, and the best methods to integrate effects across the joint force and within all domains. The question now be-

comes, in the face of peer adversaries and the return to strategic competition how does the Air Force better employ TACP Airmen? Does the Air Force use TACP Airmen as traditional controllers of air assets, or does the Air Force capitalize on years of joint integration experience to develop integration experts built to enable lead wing operations integrated within the joint area of operations?

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## END NOTES

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- <sup>1</sup> Joint Publication 1, *Doctrine of the Armed Forces of the United States*. 25 March 2013, V-15.
- <sup>2</sup> Wittenberg, Eric J. *The Devil's to Pay: John Buford at Gettysburg*. 19 October 2014.
- <sup>3</sup> *Air Force Combat Units of World War II*. United States Air Force Historical Advisory Committee, 1 Sept 1983.
- <sup>4</sup> Mulgund, Sandeep PhD. *Command and Control for Agile Combat Employment*. Online Air University, 30 August 2021.
- <sup>5</sup> Leslie, Carlin. *Agile Flag paves way for Lead Wings*. Online Air Force News, 3 November 2020.
- <sup>6</sup> Volpe, Carrie. *609th AOC optimizes ATO production, first to use KRADOS operationally*. Online Air Force News, 7 May 2021.
- <sup>7</sup> Coleman, Frederick. *Beyond the AOC-Building the Next Generation of Operational Command and Control*. Online Air University, 28 October 2021.
- <sup>8</sup> Pope, Charles. *With its promise and performance confirmed, ABMS moves to a new phase*. Online Air Force News, 21 May 2021.
- <sup>9</sup> Cowie, *Command and Control*, 2 July 2021.
- <sup>10</sup> Bold Quest 2021 discussion on all domain command and control tactics.
- <sup>11</sup> Joint Publication 1, *Doctrine*. V-14-17.
- <sup>12</sup> Coleman. *Beyond the AOC*. 28 October 2021
- <sup>13</sup> Joint Publication 1, *Doctrine*. V-17.
- <sup>14</sup> Cowie, *Command and Control*, 2 July 2021.
- <sup>15</sup> Joint Publication 1, *Doctrine*. V-15.
- <sup>16</sup> ATP 3-52.1/MCRP 3-20F.4/NTTP 3-56.4/AFTTP 3-2.76, *Multi-Service Tactics, Techniques, and Procedures for Airspace Control*. Air Land Sea Application Center, February 2019.
- <sup>17</sup> ATP 3-52.2/MCRP 3-20.1/NTTP 3-56.2/AFTTP 3-2.17, *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System*. Air Land Sea Application Center, May 2020.

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# AIR LAND SEA BULLETIN

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## OVER THE HORIZON

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### INTRODUCTION

In the next six months, ALSA will undergo a significant personnel turnover with multiple retirements and permanent changes of station planned. Of note, a new Director and Deputy Director will join the team in the summer. In spite of the turnover, the organization will continue to revise and publish 16 MTTPs over this period and maintain the monthly online distribution of articles from the field with complementary articles from our archives (<https://www.alsa.mil>). Please continue to follow ALSA on Facebook and Twitter for updates as they occur.

### AIR AND SEA BRANCH

On the docket over the next six months are eight MTTPs critical to joint force action. *Joint Suppression of Enemy Air Defenses* and *Aviation Urban Operations* will publish this spring. As those hit the field, the team will continue to revise and update *Personnel Recovery*, *Air and Missile Defense*, *Kill Box*, *Fighter Integration*, *Survival*, and *JFIRE* for publication later this year.

Over the last year, ALSA has worked in conjunction with other doctrine centers and the Services to rectify inconsistencies in the message formats used by the joint force for fire support coordination and airspace control measures; specifically, the dissemination of the air tasking order and airspace control order to joint command and control systems. With the support of the Joint Fire Support Executive Steering Committee and the Defense Information Systems Agency (DISA) United States Message Text Format (USMTF) Change Control Board the Joint USMTF System Tracker now exists at the DISA website below. ALSA requests warfighter assistance in populating the tracker with applicable information. Please visit the CAC-protected site to review and update information.

<https://disa.deps.mil/ext/cop/jintaccs/USMTF/SitePages/TrackerDashboard.aspx>

### LAND BRANCH

In the next six months, ALSA will publish revisions of three MTTPs: *Military Diving, Advising, and Conventional Forces and Special Operations Forces Integration, Interoperability, and Interdependence*. At the same time, the team will begin the review cycle for *Biometrics*, *Explosive Ordnance*, and *Nonlethal Weapons* MTTPs.

As the joint force moves away from the conflicts in Iraq and Afghanistan, ALSA will work with the Services to ensure these valuable solutions are retained until fully integrated into current Service doctrine. As solutions to these interoperability gaps are established in Service doctrine, ALSA will refocus on new tactical problems presented to the warfighter in today's operating environment.

### C2, SPACE, AND CYBER BRANCH

Four MTTPs are currently under revision: *Airspace Control*, *Brevity*, *Intelligence, Surveillance, and Reconnaissance Optimization*, and *Air-to-Surface Radar Employment*. A fifth MTTP, *Theater Air-Ground System*, should begin the review cycle in February 2022.

Please stay in touch with ALSA through social media, our website, or the organizational email accounts listed in the back of this journal. ALSA is always interested in receiving feedback and looks forward to the Service member participation as we update MTTP doctrine in the coming year.

Thank You!

## MAJOR EVENTS OF INTEREST

Date	Unit/Event	Description	Location	POC
15 - 17 Feb	BOLD QUEST 22-23 CWG	J6 Working Group for next year's Bold Quest	Suffolk, VA	Air/Sea Branch
4 - 7 Apr	37th Space Symposium	Space industry/military: Key note speakers, interactive panels, and discussion groups.	Colorado Springs, CO	C2, Air, and Space Branch
25 Apr-13 May	BOLD QUEST 22.1 CLAE	J6 Bold Quest planning conference	Savannah, GA	Land Branch
TBD Apr-Jun 22	Land Research/ Outreach TDY	MTTP Research and Outreach	Tampa, FL	Land Branch
24 - 26 May	NATO CAS Conference	Annual CAS conference for NATO partners/ members	Ramstein AB, GE	Land Branch
29 May - 3 Jun	ADRIATIC STRIKE	JTAC exercise with 22 NATO nations	Slovenia	Air/Sea Branch
20 May - 22 Jun	VALIANT SHIELD 22	Multi-Service exercise with Navy, AF participation.	INDOPACOM	C2, Air, and Space Branch
TBD 8-19 Aug	US Army Space Training Forum	US Army space related training and initiatives brief	Peterson SFB, CO	C2, Air, and Space Branch
Jul-Aug 2022	RIMPAC 2022	Rim of the Pacific multi-national exercise	Pearl Harbor, HI	All
TBD Due to COVID	Joint Fires and JCAS Symposium JCAS Curriculum Review	Annual JCAS Symposium	Virginia Beach, VA	Air/Sea Branch

## ALSA JOINT WORKING GROUPS

Date	Publication	Location	Point of Contact
01 - 03 Feb 22	JFIRE	Langley AFB, VA/Hybrid	Air/Sea Branch
01 - 04 Feb 22	Airfield Opening	Langley AFB, VA/Virtual	Land Branch
07 - 11 Feb 22	ISR Optimization	Langley AFB, VA/MS Teams	C2, Space, and Cyber Branch
24 - 25 Feb 22	Survival	Langley AFB, VA/Virtual	Air/Sea Branch
07 - 11 Mar 22	ATSRSE	Langley AFB, VA	C2, Space, and Cyber Branch
25 - 29 Apr 22	ATSRSE	Langley AFB, VA	C2, Space, and Cyber Branch
13 - 17 Jun	TAGS	TBD	C2, Space, and Cyber Branch
06 - 10 Jun	ATSRSE	Langley AFB, VA	C2, Space, and Cyber Branch
<b>All Dates are Subject to Change</b>			

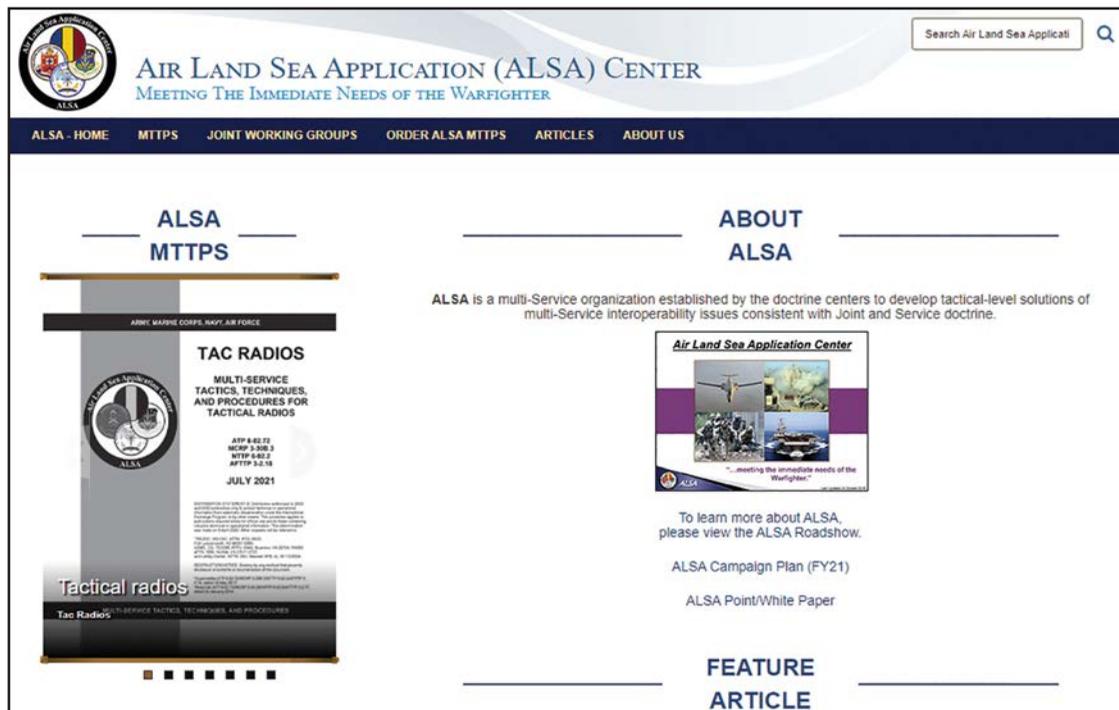
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## DOCTRINE CENTER LINKS

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**Army - <https://usacac.army.mil/organizations/mccoe/cadd>**

**Marine Corps - <https://www.mccdc.marines.mil/>**

**Navy - <https://nwdc.navy.mil/>**

**Air Force - <https://www.airuniversity.af.edu/LeMay/>**

# CURRENT ALSA MTTP PUBLICATIONS

**AIR AND SEA BRANCH-POC [alsaA@us.af.mil](mailto:alsaA@us.af.mil)**

TITLE	DATE	PUB #	DESCRIPTION/STATUS
<b>ACC</b> <i>Multi-Service Tactics, Techniques, and Procedures for Air Control Communication</i> <b>Public Release</b>	02 SEP 21	ATP 3-52.4 MCRP 3-20F.10 NTTP 6-02.9 AFTTP 3-2.8	Description: This publication provides MTTP for the control and coordination of air operations in tactical command and control managed areas of responsibility. <b>Status: Current</b>
<b>AMD</b> <i>Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense</i> <b>Distribution Restricted</b>	14 MAR 19	ATP 3-01.15 MCTP 10-10B NTTP 3-01.8 AFTTP 3-2.31	Description: This publication provides joint planners a consolidated reference on Service air defense systems, processes, and structures to include integration procedures. <b>Status: Revision</b>
<b>AOMSW</b> <i>Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare</i> <b>Distribution Restricted</b>	18 DEC 20	ATP 3-04.18 MCRP 3-20.2 NTTP 3-20.8 AFTTP 3-2.74	Description: This publication consolidates Service doctrine, TTP, and lessons-learned from current operations and exercises to maximize the effectiveness of air attacks on enemy surface vessels. <b>Status: Current</b>
<b>AVIATION URBAN OPERATIONS</b> <i>Multi-Service Tactics, Techniques, and for Aviation Urban Operations</i> <b>Distribution Restricted</b>	27 APR 16	ATP 3-06.1 MCRP 3-35.3A NTTP 3-01.04 AFTTP 3-2.29	Description: This publication provides MTTP for tactical-level planning and execution of fixed- and rotary-wing aviation urban operations. <b>Status: Revision</b>
<b>DYNAMIC TARGETING</b> <i>Multi-Service Tactics, Techniques, and Procedures for Dynamic Targeting</i> <b>Distribution Restricted</b>	05 JAN 22	ATP 3-60.1 MCRP 3-31.5 NTTP 3-60.1 AFTTP 3-2.3	Description: This publication provides the JFC, operational staff, and components MTTP to coordinate, de-conflict, synchronize, and prosecute dynamic targets in any AOR. It includes lessons learned, and multinational and other government agency considerations. <b>Status: Current</b>
<b>FIGHTER INTEGRATION</b> <i>Multi-Service Tactics, Techniques, and Procedures for Fighter Integration</i> <b>Classified SECRET</b>	15 JUN 20	MCRP 3-20.7 NTTP 3-22.6 AFTTP 3-2.89	Description: This publication is a single-source set of integration standards intended to enhance commonality when operating with multiple-mission design series or type, model, and series fighter aircraft during an air-to-air mission. It establishes baseline intercept contracts with the associated communications plan. <b>Status: Revision</b>
<b>JFIRE</b> <i>Multi-Service Tactics, Techniques, and Procedures for the Joint Application of Firepower</i> <b>Distribution Restricted</b>	18 OCT19	ATP 3-09.32 MCRP 3-31.6 NTTP 3-09.2 AFTTP 3-2.6	Description: This is a pocket-sized guide of procedures for calls for fire, CAS, and naval gunfire. It provides tactics for joint operations between attack helicopters and fixed-wing aircraft performing integrated battlefield operations. <b>Status: Revision</b>
<b>JSEAD</b> <i>Multi-Service Tactics, Techniques, and Procedures for the Suppression of Enemy Air Defenses in a Joint Environment</i> <b>Distribution Restricted</b>	15 DEC 15	ATP 3-01.4 MCRP 3-22.2A NTTP 3-01.42 AFTTP 3-2.28	Description: This publication contributes to Service interoperability by providing the JTF and subordinate commanders, their staffs, and SEAD operators a single reference. <b>Status: Revision</b>
<b>KILL BOX</b> <i>Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment</i> <b>Distribution Restricted</b>	18 JUN 18	ATP 3-09.34 MCRP 3-31.4 NTTP 3-09.2.1 AFTTP 3-2.59	Description: This MTTP publication outlines multi-Service kill box planning procedures, coordination requirements, employment methods, and C2 responsibilities. <b>Status: Revision</b>
<b>PR</b> <i>Multi-Service Tactics, Techniques, and Procedures for Personnel Recovery</i> <b>Distribution Restricted</b>	4 JUN 18	ATP 3-50.10 MCRP 3-05.3 NTTP 3-57.6 AFTTP 3-2.90	Description: This MTTP publication for personnel recovery is a single source, descriptive, reference guide for staffs and planners executing the military option of personnel recovery using joint capabilities. <b>Status: Revision</b>
<b>SCAR</b> <i>Multi-Service Tactics, Techniques, and Procedures for Strike Coordination and Reconnaissance</i> <b>Distribution Restricted</b>	31 JAN 18	ATP 3-60.2 MCRP 3-20D.1 NTTP 3-03.4.3 AFTTP 3-2.72	Description: This publication provides strike coordination and reconnaissance MTTP to the military Services for conducting air interdiction against targets of opportunity. <b>Status: Current</b>
<b>SURVIVAL, EVASION, AND RECOVERY</b> <i>Multi-Service Tactics, Techniques, and Procedures for Survival, Evasion, and Recovery</i> <b>Distribution Restricted</b>	21 AUG 19	ATP 3-50.3 MCRP 3-05.1 NTTP 3-50.3 AFTTP 3-2.26	Description: This is a weather-proof, pocket-sized, quick-reference guide of basic information to assist Service members in a survival situation regardless of geographic location. <b>Status: Revision</b>

**AIR AND SEA BRANCH-POC [alsaA@us.af.mil](mailto:alsaA@us.af.mil)**

TITLE	DATE	PUB #	DESCRIPTION/STATUS
<b>UAS</b> <i>Multi-Service Tactics, Techniques, and Procedures for Tactical Employment of Unmanned Aircraft Systems</i> <b>Distribution Restricted</b>	22 JAN 15	ATP 3-04.64 MCRP 3-42.1A NTTP 3-55.14 AFTTP 3-2.64	Description: This publication establishes MTTP for UAS by addressing tactical and operational considerations, system capabilities, payloads, mission planning, logistics, and multi-Service execution. <b>Status: FY19 Rescind Approved</b>

**LAND BRANCH-POC [alsaB@us.af.mil](mailto:alsaB@us.af.mil)**

TITLE	DATE	PUB #	DESCRIPTION/STATUS
<b>ADVISING</b> <i>Multi-Service Tactics, Techniques, and Procedures for Advising Foreign Forces</i> <b>Distribution Restricted</b>	13 NOV 17	ATP 3-07.10 MCRP 3-33.8A NTTP 3-07.5 AFTTP 3-2.76	Description: This publication discusses how advising fits into security assistance/security cooperation and provides definitions for specific terms as well as listing several examples to facilitate the advising process. <b>Status: Revision</b>
<b>AIRFIELD OPENING</b> <i>Multi-Service Tactics, Techniques, and Procedures for Airfield Opening</i> <b>Approved for Public Release</b>	27 OCT 18	ATP 3-17.2 MCRP 3-20B.1 NTTP 3-02.18 AFTTP 3-2.68	Description: This publication provides guidance for operational commanders and staffs on opening and transferring an airfield. It contains information on Service capabilities, planning considerations, airfield assessment, and establishing operations in all operational environments. <b>Status: Revision</b>
<b>BIOMETRICS</b> <i>Multi-Service Tactics, techniques, and Procedures for Tactical Employment of Biometrics in Support of Operations</i> <b>Distribution Restricted</b>	30 APR 20	ATP 2-22.85 MCRP 10-10F.1 NTTP 3-07.16 AFTTP 3-2.85 CGTTP 3-93.6	Description: Fundamental TTP for biometrics collection planning, integration, and employment at the tactical level in support of operations is provided in this publication. <b>Status: Current</b>
<b>CF-SOF</b> <i>Multi-Service Tactics, Techniques, and Procedures for Conventional Forces and Special Operations Forces Integration, and Interoperability, and Interdependence</i> <b>Distribution Restricted</b>	25 JAN 22	FM 6-05 MCRP 3-30.4 NTTP 3-05.19 AFTTP 3-2.73 USSOCOM Pub 3-33	Description: This is a comprehensive reference for commanders and staffs at the operational and tactical levels with standardized techniques and procedures to assist in planning and executing operations requiring synchronization between CF and SOF occupying the same area of operations. <b>Status: Current</b>
<b>DEFENSE SUPPORT OF CIVIL AUTHORITIES (DSCA)</b> <i>Multi-Service Tactics, Techniques, and Procedures for Defense Support of Civil Authorities</i> <b>Approved for Public Release</b>	11 FEB 21	ATP 3-28.1 MCRP 3-30.6 NTTP 3-57.2 AFTTP 3-2.67 CGTTP 3-57.1	Description: DSCA sets forth MTTP, at the tactical level, to assist the military planner, commander, and individual Service forces in employing military resources in response to domestic emergencies, in accordance with US law. <b>Status: Current</b>
<b>EO</b> <i>Multi-Service Tactics, Techniques, and Procedures for Unexploded Explosive Ordnance Operations</i> <b>Distribution Restricted</b>	12 MAR 20	ATP 4-32.2 MCRP 10-10D.1 NTTP 3-02.4.1 AFTTP 3-2.12	Description: This publication provides commanders and their units guidelines and strategies for planning and operating in an explosive ordnance environment while minimizing the impact of explosive ordnance on friendly operations. <b>Status: Current</b>
<b>FORENSICS</b> <i>Multi-Service Service Tactics, Techniques, and Procedures for Expeditionary Forensics</i> <b>Distribution Restricted</b>	30 Oct 20	ATP 3-39.21 MCRP 10-10F.5 NTTP 3-07.8 AFTTP 3-2.7 CGTTP 3-93.10	Description: This publication ensures successful planning, integration, and employment of expeditionary forensic capabilities at the tactical level in support of operations. The TTP details the six forensic functions that occur during, or in support of, tactical operations. It is designed for tactical level commanders, staffs, small unit leaders, and collectors so that they may execute the forensic functions successfully. <b>Status: Current</b>
<b>MILITARY DIVING OPERATIONS (MDO)</b> <i>Multi-Service Service Tactics, Techniques, and Procedures for Military Diving Operations</i> <b>Approved for Public Release</b>	2 JAN 19	ATP 3-34.84 MCRP 3-35.9A NTTP 3-07.7 AFTTP 3-2.75 CGTTP 3-95.17	Description: This publication is a single-source, descriptive-reference guide to ensure effective planning and integration of multi-Service diving operations. It provides combatant command, joint force, joint task force, and operational staffs a comprehensive resource for planning military diving operations, including considerations for each Service's capabilities, limitations, and employment. <b>Status: Revision</b>
<b>NONLETHAL WEAPONS (NLW)</b> <i>Multi-Service Service Tactics, Techniques, and Procedures for the Tactical Employment of Nonlethal Weapons</i> <b>Distribution Restricted</b>	29 MAY 20	ATP 3-22.40 MCTP 10-10A NTTP 3-07.3.2 AFTTP 3-2.45 CGTTP 3-93.2	Description: This publication provides a single-source, consolidated reference on employing nonlethal weapons. Its intent is to make commanders and subordinates aware of using nonlethal weapons in a range of scenarios including security, stability, crowd control, determination of intent, and situations requiring the use of force just short of lethal. <b>Status: Current</b>

**LAND BRANCH-POC** [alsab@us.af.mil](mailto:alsab@us.af.mil)

TITLE	DATE	PUB #	DESCRIPTION/STATUS
<b>OP ASSESSMENT</b> <i>Multi-Service Tactics, Techniques, and Procedures for Operation Assessment</i> <b>Approved for Public Release</b>	07 FEB 20	ATP 5-0.3 MCRP 5-10.1 NTTP 5-01.3 AFTTP 3-2.87	Description: This publication serves as a commander and staff guide for integrating assessments into the planning and operations processes for operations conducted at any point along the range of military operations. <b>Status: Project Assessment</b>
<b>PEACE OPS</b> <i>Multi-Service Tactics, Techniques, and Procedures for Conducting Peace Operations</i> <b>Approved for Public Release</b>	2 MAY 19	ATP 3-07.31 MCTP 3-03B AFTTP 3-2.40	Description: This publication offers a basic understanding of joint and multinational PO, an overview of the nature and fundamentals of PO, and detailed discussion of selected military tasks associated with PO. <b>Status: Current</b>  <b>Ownership of this MTTP and responsibility for future revisions has been transferred to the Peacekeeping and Stability Operations Institute</b>
<b>TACTICAL CONVOY OPERATIONS</b> <i>Multi-Service Tactics, Techniques, and Procedures for Tactical Convoy Operations</i> <b>Distribution Restricted</b>	26 MAR 21	ATP 4-01.45 MCRP 4-11.3H NTTP 4-01.6 AFTTP 3-2.58	Description: This is a quick-reference guide for convoy commanders operating in support of units tasked with sustainment operations. It includes TTP for troop-leading procedures, gun-truck employment, countering IEDs, and battle drills. <b>Status: Current</b>

**COMMAND AND CONTROL (C2), CYBER AND SPACE BRANCH-POC:** [alsac@us.af.mil](mailto:alsac@us.af.mil)

TITLE	DATE	PUB #	DESCRIPTION/STATUS
<b>AIRSPACE CONTROL</b> <i>Multi-Service Tactics, Techniques, and Procedures for Airspace Control</i> <b>Distribution Restricted</b>	14 FEB 19	ATP 3-52.1 MCRP 3-20F.4 NTTP 3-56.4 AFTTP 3-2.78	Description: This MTTP publication is a tactical-level document which synchronizes and integrates airspace C2 functions and serves as a single-source reference for planners and commanders at all levels. <b>Status: Revision</b>
<b>AIR-TO-SURFACE RADAR SYSTEM EMPLOYMENT</b> <i>Multi-Service Tactics, Techniques, and Procedures for Air-to-Surface Radar System Employment</i> <b>Distribution Restricted</b>	23 OCT 19	ATP 3-55.6 MCRP 2-10A.4 NTTP 3-55.13 AFTTP 3-2.2	Description: This publication covers theater-level, air-to-surface radar systems and discusses system capabilities and limitations performing airborne command and control; wide area surveillance for near-real-time targeting and target development; and processing, exploiting, and disseminating collected target data. <b>Status: Project Assessment</b>
<b>BREVITY (Change 1)</b> <i>Multi-Service Brevity Codes</i> <b>Approved for Public Release</b>	28 MAY 20	ATP 1-02.1 MCRP 3-30B.1 NTTP 6-02.1 AFTTP 3-2.5	Description: This publication defines multi-Service brevity which standardizes air-to-air, air-to-surface, surface-to-air, and surface-to-surface brevity code words in multi-Service operations. <b>Status: Revision</b>
<b>ISR OPTIMIZATION</b> <i>Multi-Service Tactics, Techniques, and Procedures for Intelligence, Surveillance, and Reconnaissance Optimization</i> <b>Distribution Restricted</b>	3 SEP 19	ATP 3-55.3 MCRP 2-10A.8 NTTP 2-01.3 AFTTP 3-2.88	Description: This publication provides a comprehensive resource for planning, executing, and assessing surveillance, reconnaissance, and processing, exploitation, and dissemination operations. <b>Status: Revision</b>
<b>TACTICAL RADIOS</b> <i>Multi-Service Tactics, Techniques, and Procedures for Tactical Radios</i> <b>Distribution Restricted</b>	14 JUL 21	ATP 6-02.72 MCRP 3-30B.3 NTTP 6-02.2 AFTTP 3-2.18	Description: This publication is a single source, descriptive reference guide to ensure tactical level operators and planners have a comprehensive resource for planning, employing, creating, and operating radio networks in a Joint Service Environment. <b>Status: Current</b>
<b>TAGS</b> <i>Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System</i> <b>Approved for Public Release</b>	21 MAY 20	ATP 3-52.2 MCRP 3-20.1 NTTP 3-56.2 AFTTP 3-2.17	Description: This publication promotes Service awareness regarding the role of airpower in support of the JFC's campaign plan, increases understanding of the air-ground system, and provides planning considerations for conducting air-ground ops. <b>Status: Current</b>

# VOTING JOINT ACTION STEERING COMMITTEE MEMBERS



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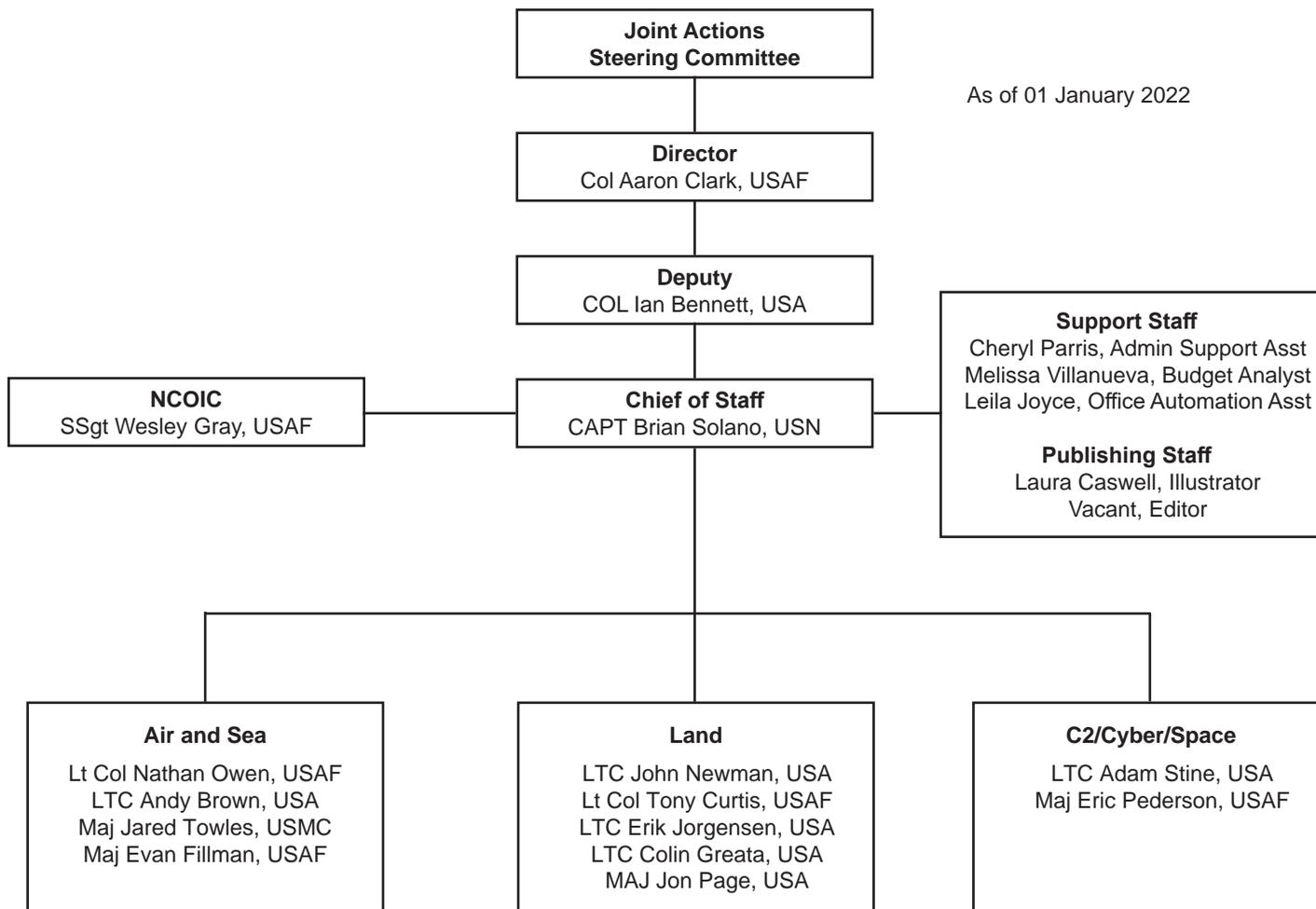
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Commander, Curtis E.  
LeMay Center for  
Doctrine Development  
and Education

## ALSA ORGANIZATION



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## ALSA MISSION AND INTENT

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### MISSION:

ALSA synchronizes joint tactical warfighting capabilities and processes through digital/print media and professional networking to improve near-term multi-Service interoperability.

### INTENT:

ALSA is the principal DOD organization charged with synchronizing multi-Service warfighting capabilities at the tactical level. We will accomplish this through professional networking, collaborative tools, digital media and any method that allows us to engage and inform the warfighter. Adaptability, credibility, and speed are the pillars of ALSA's organizational culture. These pillars ensure we provide timely, relevant, and accessible multi-Service solutions in ways that bolster the interoperability and lethality of the Joint Force.

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## UPCOMING BATTLESPACE JOURNAL

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### Upcoming Articles (Subject to Change)

1. DOD Cyberspace: Establishing a Shared Understanding and How to Protect It
2. Maneuver Combat and the Intergration of Air Force Special Warfare
3. Southwest Pacific Area-A Retrospective to Inform Future C2 and Competition in the Indo-Pacific
4. Modernity of Contemporary Warfare and the Second Nagorno-Karabakh War
5. Army Airspace Management During Large-Scale Combat Operations
6. Tactical Interoperability Gaps in Defense Support of Civil Authorities
7. Army Aviation No Man's Land and Peanut Butter

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## BATTLESPACE JOURNAL SUBMISSIONS

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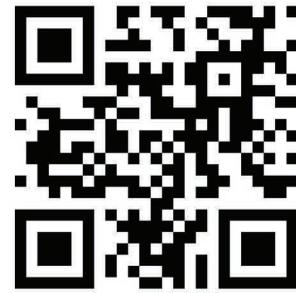
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