

Agile Combat Employment

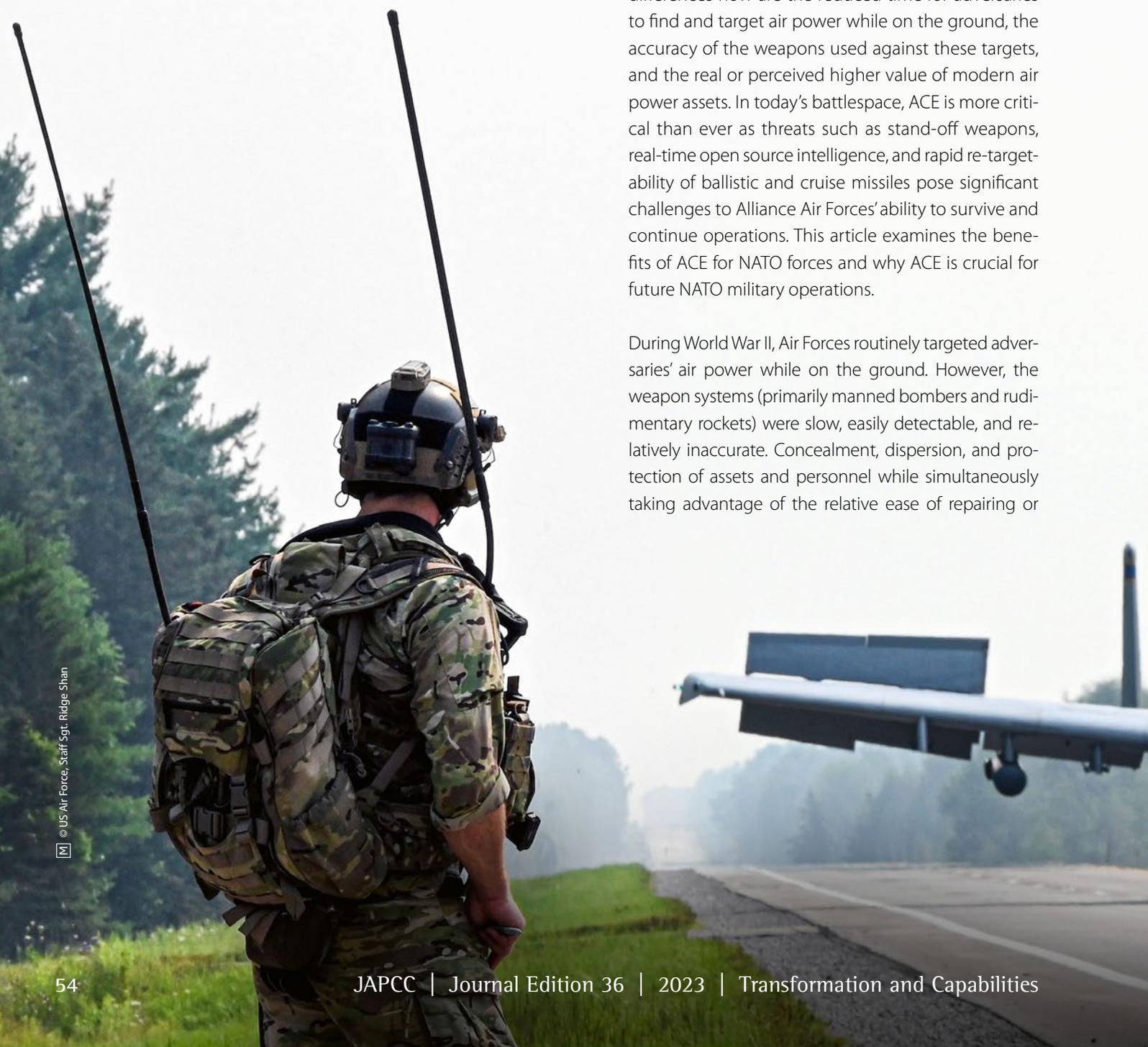
The Next Big Thing for NATO Air Power

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The concept of Agile Combat Employment (ACE) may not be entirely new nor radical, but the complexities of modern warfare necessitate a number of modifications resulting in a more nuanced and innovative approach. Defined by the USAF's Doctrine Note 1-21

as a 'proactive and reactive operational scheme of manoeuvre executed within threat timelines to increase survivability while generating combat power'; the core tenets of ACE have always been a requirement for both US and NATO forces.¹ However, the differences now are the reduced time for adversaries to find and target air power while on the ground, the accuracy of the weapons used against these targets, and the real or perceived higher value of modern air power assets. In today's battlespace, ACE is more critical than ever as threats such as stand-off weapons, real-time open source intelligence, and rapid re-targetability of ballistic and cruise missiles pose significant challenges to Alliance Air Forces' ability to survive and continue operations. This article examines the benefits of ACE for NATO forces and why ACE is crucial for future NATO military operations.

During World War II, Air Forces routinely targeted adversaries' air power while on the ground. However, the weapon systems (primarily manned bombers and rudimentary rockets) were slow, easily detectable, and relatively inaccurate. Concealment, dispersion, and protection of assets and personnel while simultaneously taking advantage of the relative ease of repairing or



replacing damaged aircraft were critical in reducing the enemy's effectiveness. During the Cold War, a large number of airbases with dispersed forces, fortified shelters, integrated air defences, and alert fighters able to intercept inbound bombers mitigated the threat from conventional weapons while deterring the threat of a nuclear strike with an assured second-strike capability. Modern systems are complex, expensive, easily damaged, and in almost all cases cannot be easily or quickly replaced. Concurrently, the Alliance has consolidated its forces onto fewer and more concentrated airfields, partly due to the high infrastructure costs and the reduction in the size of fleets. As an example, the USAF has reduced 65% of its overseas military air bases since the end of the Cold War.² Thus, the resultant vulnerability and continued requirement to ensure the survival and protection of all Allied weapon systems during hostilities necessitates a posture that minimizes on-ground losses.

ACE is the US Air Force's solution to this problem set. According to the AFDN 1-21, 'ACE complicates the enemy's targeting process, creates political and operational dilemmas for the enemy, and creates flexibility for friendly forces'.³ Once again, this is neither new nor innovative. However, with persistent overhead imagery, global air surveillance capabilities, the ease of locating on-ground assets using open-source tools, and the rapid re-targetability of modern hypersonic and ballistic missiles, the challenge for Alliance forces is much more difficult to overcome. The USAF states that 'to achieve freedom of action, ACE enables

convergence across domains, presenting an adversary with dilemmas at an operational tempo that complicates or negates adversary responses and enables the joint force to operate inside the adversary's decision-making cycle'.⁴

Agility at Tempo is the Challenge

Modern weapon systems are complex and highly capable; however, they are generally not 'agile', requiring significant support in airlift, maintenance, logistics, and off-board mission planning or mission systems processing. For instance, ISR platforms, such as the RC-135U, require exquisite on-ground capabilities to download the collected data for processing and upload the required mission profiles to enable execution. Modern 5th generation platforms require unique systems to consolidate threat information, plan routings around or through integrated air and missile defence, and complete deliberate air-to-surface targeting. Without these on-ground capabilities, the effectiveness of the airborne system is reduced significantly. To ensure the continued effectiveness of these airborne assets, units must develop the capability to reposition the weapon systems' ground support elements. Most modern allied aircraft can no longer land on a highway somewhere and refuel, re-arm, maybe patch a few bullet holes, and resume the fight as effortlessly as in the past. The Alliance needs to develop options that enable and preserve the successful generation of air power.



Building new, alternate air bases around the world is a difficult and undesirable solution. So how can a highly complex force, with a long logistics trail and a limited number of personnel, operate with agility in a dynamic and unpredictable battlespace? The USAF's answer is a combination of base clusters, multi-capable airmen, interoperability with allies and partners, and mission command. Base clusters provide pre-defined and geographically grouped locations capable of mutual defence, mutual support, and unified Command and Control (C2). Multi-capable airmen are functional specialists with basic capabilities in related fields, such as avionics specialists trained in basic aircraft refuelling. Interoperability with allies and partners provides the capability and framework for weapon systems from one nation to recover and regenerate at a location operated by another nation. This interoperability includes not just 'Basic Cross Servicing', but also 'Mission Cross Servicing', including weapons handling.⁵ The final and most challenging component is mission command, which is a leadership concept of empowering subordinates at the lowest capable level to make decisions and take decisive action under 'mission-type orders' thus enabling combat operations to continue amid degraded communications and without higher-echelon's guidance.⁶

Impact on NATO Air Power

The current operational challenges and global threats are not unique to US forces. NATO nations and partners demonstrate similar vulnerabilities stemming from interoperability issues, conventional and reliable force structure, and reliance on centralized command and control.

NATO nations must decide how best to focus efforts and resources. The USAF specifically emphasizes the need to 'create steady-state and contingency authorities with partner nations which allow for: overflight, direct coordination with host nation defence, [and] staging of material/equipment!'⁷ NATO can certainly justify a complete re-vectoring of air power capabilities towards agility and resilience.

The NATO Defence Planning Process states that no nation should provide more than 50% of any single

Alliance capability.⁸ Although this limitation does not specify the precise contributions of a nation during a NATO operation, it does increase the likelihood that non-US NATO members will execute a significant portion of the mission. In a high-intensity, high-threat conflict where only US units are trained and equipped to execute ACE, the non-US portion of the Alliance's capabilities, deployed at unprotected and predictable fixed locations, may be more vulnerable to adversary action.

Nevertheless, there are many other ways for NATO to support the ACE concept. Several nations are currently replacing obsolete F-16s with modern F-35A aircraft. As the older aircraft are retired, these nations may have to return the ground support equipment and spare parts to the US if required, under their Foreign Military Sales programme. If used in support of the NATO ACE concept, these logistics components could be reallocated to remain in Europe and provide a powerful and cost-effective solution to at least a portion of the required pre-positioned, staged materiel.

Additionally, the F-16 operating nations transitioning to F-35 could continue to exercise the skills required to service F-16s, maintaining an acceptable interoperability level for these capabilities along with the additional interoperability for F-35. These options, keeping F-16 support equipment and maintaining aircraft cross-servicing skills, would enhance the NATO ACE mission considerably.

The NATO ACE Concept

NATO adopting the ACE concept Alliance-wide would offer several key advantages. First and foremost, it would increase the Alliance's ability to project air power promptly and effectively, particularly in regions where airbases may be limited or difficult to access. This is especially important considering the current geopolitical situation, with the ongoing war in Ukraine and the ever-present threat of conflict.

Furthermore, ACE provides a means of operating in contested airspace, which is becoming increasingly prevalent as potential adversaries develop advanced Anti-Access/Area Denial (A2/AD) capabilities.

ACE reduces the risk of having all air assets concentrated in a single location by allowing aircraft to operate from various dispersed locations. This, in turn, increases the survivability and resilience of NATO Air Power.

Another advantage of ACE, in theory, is its ability to morph the logistical burden associated with deploying and sustaining air assets. By enabling aircraft to operate from a broader range of locations, ACE may reduce the need for large, centralized bases and the associated support infrastructure, lowering the strategic value of any particular airbase in the target list of a potential enemy. If planned and executed effectively, with proper training and prepositioned support equipment, this concept not only reduces the cost and complexity of deploying air power but also increases the flexibility of NATO's air operations, as aircraft can be rapidly repositioned to respond to changing operational requirements with only a minimal support element. However, if not planned, trained, and executed correctly, the cost and complexity of the ACE concept can increase exponentially. In either case, there is an inherent risk associated with lean, forward logistics resulting in the reduced capability to sustain, repair, or replace damaged equipment.

Finally, embracing an ACE-like concept increases interoperability between NATO and its allies. By adopting a common approach to air power projection and sustainment, the Alliance will improve its ability to operate in a coordinated and effective manner. This can be particularly important in multi-domain and

joint operations, where coordination and integration of different capabilities can be challenging and a high degree of synchronization and adaptation is required. NATO already prioritizes standardization and interoperability, adopting an ACE concept for NATO further supports this goal.

Challenges Remain

Implementing ACE requires a substantial shift in thinking and the development of new tactics, techniques, and procedures with the consequent impact on training requirements. Furthermore, it requires significant investment in infrastructure and equipment to support dispersed operations. For some NATO members, the financial burden of implementing ACE may be prohibitive.⁹

Additionally, ACE may not be suitable for all NATO members, as their military capabilities and geographic circumstances vary widely. Some NATO countries may lack the necessary aircraft, equipment, and personnel to implement ACE, while others may have well-protected airbases that can effectively support resilient air operations. In addition, some NATO members may face challenges in securing the necessary host nation support and access agreements to establish dispersed airbases, particularly in regions with high international political tensions.





USAF Airmen perform hot-pit refuelling on an F-35A Lightning II assigned to Eielson AFB, Alaska, at Northwest Field as part of Agile Combat Employment (ACE) multi-capable Airmen training during Cope North 21 at Andersen AFB, Guam, 16 February 2021. ACE, the new warfighting concept that Pacific Air Forces is operationalizing ensures agility, deterrence, and resiliency in a contested or degraded environment.

Finally, implementing ACE may present operational challenges in terms of coordination and logistics. Dispersed operations require a high degree of coordination and communication between units, which can be challenging in high-stress, high-tempo combat environments. Furthermore, the dispersed nature of ACE operations can increase the logistical burden associated with maintaining and sustaining air assets, as well as the need for frequent and rapid repositioning of aircraft.¹⁰

ACE and MDO

The ACE concept, which both supports and relies on the future Multi-Domain Operations (MDO) concept, can provide the Alliance with freedom of manoeuvre and deter enemy action by complicating adversary's planning by presenting dilemmas and operational ambiguity. However, many NATO nations can significantly enhance their ability to project air power by incorporating the ACE concept into their operations. This concept is not new, since NATO forces demonstrated similar operational capabilities throughout the Cold War.¹¹ The differences now are the speed of the adversaries' targeting and decision cycles, the ease of adversary weapons' re-targeting, and the increased accuracy. ACE, as currently envisioned by the USAF, seeks to manoeuvre across all domains, inside of adversary targeting timelines, increase ambiguity, and challenge the assumptions of their decision-makers, driving decisions favourable to the US and allies.

The ACE concept aligns closely with the MDO approach, which military organizations worldwide are increasingly adopting. MDO is an operational concept that seeks to integrate different domains of warfare (i.e. air, land, maritime, space, and cyber) to achieve a synergistic effect greater than the sum of its parts.¹² In this context, ACE can support MDO in several ways:

1. **Enhanced Agility and Flexibility:** The ability to rapidly respond to emerging threats and exploit opportunities is critical to achieving successful MDO. ACE can increase the agility and flexibility of air power, allowing it to be rapidly deployed and sustained in austere and contested environments.
2. **Dispersed Operations:** Adversaries normally will target centralized airbases as a means of disrupting operations, which would undermine the effectiveness of MDO. ACE enables dispersed operations, allowing aircraft to operate from a variety of locations and reducing the risk of having all air assets concentrated in a single location.
3. **Integration with Other Domains:** Integration of different capabilities across multiple domains is a key tenet of MDO. ACE can enable closer integration of air with the other domains, such as ground and maritime, by providing a means of rapidly deploying air assets to support.
4. **Agile Forward Logistics:** The need to responsively deploy, forward-deploy, and sustain forces at multiple location while executing operations across domains can place significant strain on logistical

capabilities but is necessary for MDO. Training and exercising agile forward logistics elements, to include multi-capable airmen and pre-positioned support equipment, minimizes the requirements for deploying and sustaining air elements, enabling agility for forward forces.

5. Improved Interoperability: ACE can enhance interoperability between NATO members and allies by adopting a common approach to air power projection and sustainment.

Conclusion

NATO has only recently begun exploring MDO due to the recognition that joint operations are no longer sufficient to achieve the strategic level effects necessary to coerce an adversary. With interoperability at its core, NATO MDO is the orchestration of military activities across all domains and environments, synchronized with non-military activities, to enable the Alliance to deliver converging effects at the speed of relevance.¹³ ACE is one of the key enablers of this operational concept. As the Alliance continues to develop the MDO

concept, NATO ACE will most likely be the best and most effective 'proactive and reactive operational scheme of manoeuvre executed within threat time-lines to increase survivability while generating combat power'.¹⁴ In short, ACE is crucial for future NATO military operations to assure survivability and sustained combat generation in a future high-threat, high-intensity conflict. ●

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4. Ibid., p. 2.
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6. Ibid. 1, p. 2–4.
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