The Continued Evolution of Air Force Targeting

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An examination of the evolution of US Air Force targeting readiness over six air campaigns since Desert Storm illustrates the complexities and challenges of Air Force targeting operations in diverse operational environments. Proactive targeting strategies, comprehensive analysis, and continuous investment in expertise and infrastructure are needed to ensure readiness and effectiveness in air campaigns. Ultimately, targeting proficiency is indispensable in shaping the outcome of modern conflicts, and ongoing adaptation and improvement in Air Force targeting capabilities are imperative to prepare Airmen for the future of air warfare.

How has US Air Force targeting readiness evolved since Operation Desert Storm? The 1991 air campaign over Iraq marked a turning point: stealth technology and precision-guided munitions (PGM) finally brought early airpower theorists' nodal targeting concepts to life, showcasing airpower's ability to contribute to a quick, decisive military victory in large-scale combat operations. Due to the political flexibility and room to maneuver it provides, airpower has become a favored coercive tool among American policymakers in the years since.[1] Yet, Desert Storm also revealed enduring flaws in targeting readiness, including organizational confusion, inadequate targeting materials, and suboptimal assessments.

John Glock's 1994 seminal *Airpower Journal* article, "The Evolution of Air Force Targeting," traced the service's successes and struggles with targeting from the dawn of airpower through the Gulf War. Glock attributed many of the aforementioned flaws to a lack of specialization, insufficient personnel, and the absence of a robust targeting database or analytical organization.[2] Despite its Gulf War successes, the Air Force removed the targeting officer career field and reduced training in the war's aftermath, mirroring the broader neglect of targeting intelligence at the national level.[3] Many of the same structural and institutional challenges persist three decades later—despite repeated lessons drawn from combat.

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1. Dag Henriksen, *NATO's Gamble: Combining Diplomacy and Airpower in the Kosovo Crisis* (Naval Institute Press, Annapolis, 2007), 190.

2. John Glock, "The Evolution of Air Force Targeting," *Airpower Journal* 8, no. 3 (1994), reprinted in *Air and Space Power Journal* 26, no. 6 (December 2012): 156, https://www.airuniversity.af.edu/.

3. Sarah Gee, "Through Rose Colored Glasses: Targeting in Its Heyday" (master's thesis, School of Advanced Air and Space Studies, June 2018), 8–9.

This article serves two purposes. First, it synthesizes secondary sources to trace the continued evolution of Air Force targeting from 1995 through today, providing a contemporary addendum to Glock's work. Second, it distills the findings related to the Air Force's readiness to perform its joint targeting functions from six air campaigns into nine lessons learned for policymakers, commanders, and strategists. These operations and time periods were chosen for their doctrinal significance, variation in scale and scope, and applicability to the evolution of Air Force targeting practices—together offering a representative cross section of successes and challenges in both deliberate and dynamic targeting—or, respectively, processes involving planned targets and targets of opportunity.

The Air Force's experience in conflicts from 1995 through today shows that holistic targeting readiness depends on extensive preparation before the initiation of hostilities, technical mastery of deliberate and dynamic targeting skills during conflict, organizational specialization, and seamless joint and combined target development and approval. These findings must inform the development of future Air Force targeting doctrine, training programs, and organizational structures to maintain readiness and strategic effectiveness in limited war and large-scale combat operations.

A Targeting Primer

> *Our product in war is dead targets, and our product in peace is all that goes into generating the warrior proficiency that kills those targets in wartime.*
>
> - General John P. Jumper, commander, Air Warfare Command[4]

Joint doctrine defines targeting as selecting, prioritizing, and matching appropriate responses to physical or virtual adversary entities.[5] Deliberate targets are identified, developed, and selected ahead of operations, while dynamic targets emerge during operations. A targeteer is an expert in the full spectrum of targeting tasks, aiding in operations planning, target analysis, and target material development. A weaponeer specializes in matching weapons and fuses to targets.

The targeting process integrates intelligence, planning, and operations to degrade adversaries and synchronize lethal or nonlethal effects.[6] While the complete, six-step joint targeting cycle occurs during wartime, steps like target development and capabilities analysis should begin in peacetime (fig. 1). Target system analysis identifies vulnerabilities in adversary systems. Analysts can develop these vulnerabilities into targets that align with commander objectives; once complete, targets are vetted, validated, and added to a joint target list. For this article, insufficient target quantity refers to a lack of validated targets, while insufficient target quality alludes to inadequacies in information such as current

4. John P. Jumper, remarks at the Air Force Association Air Warfare Symposium, 24 February 2000, Orlando, FL, https://secure.afa.org/.

5. Joint Publication (JP) 3-60, *Joint Targeting* (Chairman of the Joint Chiefs of Staff, 28 September 2018), I-1.

6. JP 3-60, I-6.

imagery, intelligence, weapon solutions, or collateral damage estimates. Targeting data is stored in an electronic repository known as the Modernized Integrated Database.

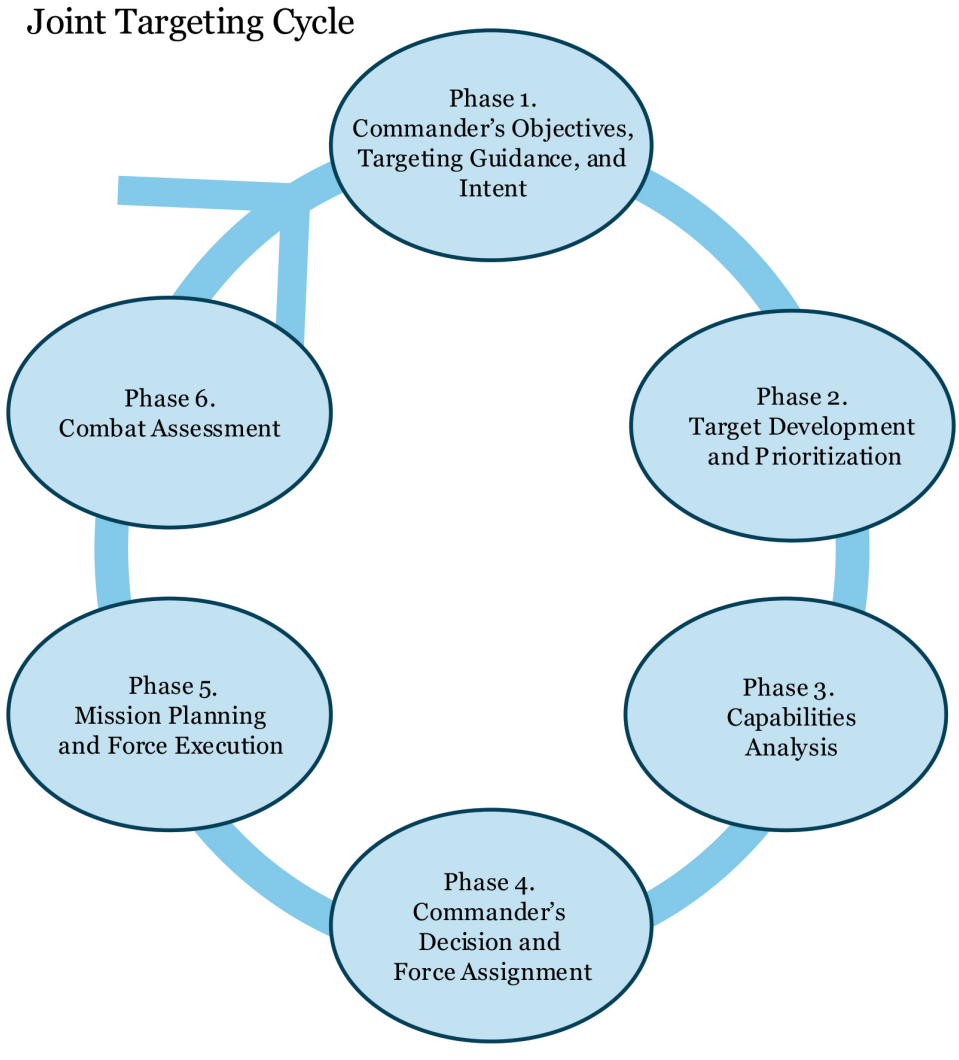

Figure 1. The six-phase iterative joint targeting process[7]

Targeting assessment is the final step of the joint targeting cycle, measuring tactical and operational progress. It includes battle damage assessment (BDA), where analysts compare pre- and post-strike data to evaluate physical and functional effects on targets and their broader systems. BDA results, combined with munitions performance reviews and reattack recommendations, form the combat assessment process. Proper targeting

7. JP 3-60, I-6.

assessment provides commanders with near-real-time insights into the effectiveness of tactical operations and the force's progress toward operational objectives.

This targeting framework—centered on analysis, prioritization, and assessment—moves from doctrinal concept to operational reality in actual combat. An analysis of six campaigns after the Persian Gulf War reveals how deliberate and dynamic targeting has evolved since 1995 and outlines the challenges that the Air Force must confront to ensure targeting readiness for future conflict.

Deliberate Force (Bosnia-Herzegovina, 1995)

Operation Deliberate Force was the first major test of Air Force targeting readiness after Desert Storm. The campaign was an outgrowth of NATO's Operation Deny Flight, which enforced a no-fly zone over Bosnia-Herzegovina. After a Serbian artillery strike in Sarajevo killed 38 civilians, NATO prosecuted an air campaign from 30 August to 14 September 1995. The operation degraded the Bosnian Serb Army's military capabilities while minimizing casualties, collateral damage, and political costs, with American targeting and intelligence playing a key role.[8]

Air campaign planners in Desert Storm had emphasized the importance of thorough target system analysis, a lesson many carried forward into Deliberate Force. In 1993, Allied Forces Southern Europe (AFSOUTH) began preparing target folders; by 1995, analysts had developed 444 Bosnian Serb Army targets, with the UN/NATO joint target board approving 87 AFSOUTH Deadeye campaign targets.[9] Air Force targeteers evaluated adversary sites and equipment for military value and potential collateral damage, creating a matrix to assist in selecting targets.

Precision-guided munitions played a crucial role in the campaign, comprising 70 percent of weapons used compared to less than 10 percent in Desert Storm.[10] Attention to detailed mensuration of aim points and weapon fusing resulted in precise strikes. PGMs reduced civilian casualties, with no refugees or atrocities reported.[11] The Allied Air Forces Southern Europe commander, Lieutenant General Michael Ryan, personally oversaw the selection of aim points, an approach made possible by the campaign's limited scale.[12]

Still, the assessment process revealed inefficiencies.[13] The battle damage assessment team, overwhelmed by the volume of data from satellites and unmanned aerial systems,

8. Christopher M. Campbell, "The Deliberate Force Air Campaign Plan," in *Deliberate Force: A Case Study in Effective Air Campaigning: Final Report of the Air University Balkans Air Campaign Study*, ed. Robert C. Owen (Air University Press, 2000), 87.

9. Tim Ripley, *Operation Deliberate Force: The UN and NATO Campaign in Bosnia 1995* (Center for Defense and International Security Studies, 1999), 164.

10. Benjamin S. Lambeth, *The Transformation of American Air Power* (Cornell University Press, 2000), 160.

11. Thomas Hughes, "Deliberate Force: Ambivalent Success," in *Air Power in the Age of Primacy: Air Warfare Since the Cold War*, ed. Phil Haun et al. (Cambridge University Press, 2021), 73.

12. Richard L. Sargent, "Deliberate Force Targeting," in *Deliberate Force*, 290.

13. Ripley, *Deliberate Force*, 258.

needed more preparation, personnel, and a standardized BDA policy. NATO had no permanent BDA staff assigned to the combined air operations center, making the process a bottleneck despite the campaign's small scale. The Air Force needed a comprehensive BDA doctrine and well-trained personnel before future conflicts.

Air Force targeteers performed admirably in Deliberate Force, even though gaps in doctrine, training, and formal processes for collateral damage estimation (CDE) and battle damage assessment persisted. The campaign's limited scale and narrow objectives helped obscure these shortcomings. Yet, these same deficiencies re-emerged as critical vulnerabilities in larger and more complex operations that followed. Deliberate Force succeeded despite them—but future campaigns were not as forgiving.

Allied Force (Kosovo and Serbia, 1999)

Allied Force was a US-led NATO campaign waged entirely with airpower and aimed at preventing Serbian human rights abuses in Kosovo. After Serbian paramilitary forces killed 45 civilians in Račak on 15 January 1999, NATO authorized air strikes. The campaign, lasting 78 days, was more prolonged and destructive than Deliberate Force. Contrary to expectations, airpower alone failed to force Serbian President Slobodan Milošević's concessions quickly. The extended campaign revealed significant deficiencies in targeting readiness, notably shortfalls in trained targeting analysts, which hampered imagery analysis, target discovery and development, and BDA.[14]

Campaign planning began 10 months before conflict initiation. The initial plan, Nimble Lion, included 250 targets developed by Airmen.[15] This list would grow to 976 targets as the campaign progressed, though target identification and approval proved difficult. Air Force personnel struggled to develop impactful targets without a coherent analysis of Serbian military vulnerabilities conducted before the campaign. As a result, targeteers had difficulty justifying the military necessity of strikes, leading to slow NATO approval processes.[16] By day 41, the combined air operations center claimed to lack defined policy objectives, forcing staff to infer goals from US President Bill Clinton's public statements.[17] Furthermore, planning and coordination suffered from degraded communications between NATO Allies due to interoperability issues, specifically a dearth of rapid and secure communications.[18] In this context, even core targeting functions—such as CDE—became more contentious and error-prone.

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14. Michael W. Lamb Sr., *Operation Allied Force: Golden Nuggets for Future Campaigns*, Maxwell Paper no. 27 (Air War College, August 2002), 10, https://apps.dtic.mil/.

15. Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (RAND Corporation, 2001), 11.

16. Lambeth, *NATO's Air War*, 201.

17. Richard Hand, "Who Should Call the Shots? Resolving Friction in the Targeting Process" (master's thesis, Air University, 2001), 56, https://apps.dtic.mil/.

18. Lambeth, *Transformation*, 213.

Despite the efficacy of CDE in Deliberate Force, the coalition passed over many targets in Allied Force due to overestimated civilian casualty risks. Some attributed this issue to an unproven method of estimating collateral damage.[19] Others cited American fears of losing domestic support or allied consensus as the primary motivation.[20] Whatever the reason, this observation showed a continuation of concerns over civilian casualties as a limitation for targeteers to contend with in modern air campaigns. Precision-guided munitions offer great appeal for policymakers and commanders seeking to avoid collateral damage, but they come with inherent limitations—namely, scarcity.

The US military expended nearly 8,500 PGMs during the campaign; an additional 30 days of air operations at the same rate might have depleted its PGM inventory.[21] While more a logistics and procurement issue than a targeting problem, this does point to the need to carefully analyze and select targets to optimize limited resources. The coalition spent many PGMs on unnecessary reattacks resulting from a slow battle damage assessment process. No BDA team was in place at the combined air operations center at the start of Deliberate Force, which contributed to needless follow-up strikes and the NATO coalition's broader inability to track the air war's progress.[22] Additionally, the lack of a dynamic targeting team slowed the identification and elimination of dispersed Serbian forces. The Yugoslav military had learned to disperse its equipment to survive air strikes, echoing Saddam's dispersal of Scud missile forces in the Gulf War. This trend of adversary equipment dispersal presented a targeting challenge for future conflicts, meaning Air Force targeteers could no longer focus solely on deliberate targeting.

Unmanned aerial vehicles appeared in previous air campaigns, but were featured more prominently in Allied Force, particularly in intelligence applications.[23] Air Force General John Jumper predicted after the war that they would be used increasingly in future conflicts and become key to targeting operations. This prediction was prescient, and Jumper could have made a similar prediction for cyber warfare. Allied Force featured the first American use of offensive cyber warfare to support an air campaign.[24]

Overall, the campaign highlighted recurrent Air Force targeting deficiencies. No centralized organization was responsible for target intelligence, leading to a lack of systematic analysis of the Milošević regime and Yugoslav Army prior to operations. CDE training and doctrine were still underdeveloped, and assessment processes remained inefficient. Dynamic targeting became more vital, though the Air Force still had not institutionalized a dynamic targeting cell within its operations center. The service had yet to fully address many of the targeting challenges identified in previous conflicts, and future operations tested these shortcomings.

19. Lamb, *Allied Force*, 14.
20. Henriksen, *NATO's Gamble*, 198.
21. Lamb, *Allied Force*, 16.
22. Lambeth, *NATO's Air War*.
23. Anthony M. Schinella, *Bombs Without Boots: The Limits of Airpower* (Brookings Press, 2019), 58.
24. Lambeth, *NATO's Air War*, 112.

Enduring Freedom (Afghanistan, 2001 to 2002)

Operation Enduring Freedom sought to dismantle al-Qaeda and overthrow the Taliban after the 9/11 attacks. Led by US special operations forces with support from local military forces, airpower initially focused on targeting Taliban and al-Qaeda leadership. The early phase of the air campaign was successful in ousting the Taliban in less time than expected.[25] Unfortunately, the broader military effort to degrade al-Qaeda took longer than anticipated and ultimately never set conditions for a lasting democratic government in Kabul.

There was no pre-existing plan or analysis for dismantling the Taliban or al-Qaeda.[26] It would not have mattered much; aside from individual enemy leaders, there was little of strategic importance to bomb in Afghanistan. Some in the Air Force complained about the shortage of targets and the need for more connection between strikes and higher strategy.[27] This strategy-to-strike disconnect was likely more a product of airpower being ill-suited to coerce the target-scarce adversary and less of the service's inadequate targeting readiness. Yet, at the campaign's outset, the Air Force still lacked a dedicated organization for full spectrum targeting. Additionally, US Central Command's (CENTCOM) strict rules for BDA confirmation resulted in a slow, poorly coordinated process that could not measure the combat operations' impact on the enemy at a target system level. [28]

Enduring Freedom highlighted both the promise and the pitfalls of dynamic targeting. Improved data flow and tactics helped make time-sensitive strikes a standard feature of modern air campaigns, marking a significant operational advancement. Yet, the compressed timelines of dynamic targeting also contributed to higher-than-expected civilian casualties in early operations.[29] Two key takeaways emerged. First, the Air Force must ensure that weaponeering, point mensuration, and CDE processes are rapidly employable and consistently repeatable to match the pace of dynamic targeting. Second, building and sustaining a robust cadre of trained and certified analysts in these disciplines are just as essential for limited airpower campaigns as for large-scale combat operations.

Iraqi Freedom (Iraq, 2003)

The initial combat phase of Iraqi Freedom featured a rapid initial air campaign like the previous operation against Saddam Hussein over a decade before. Unlike in Afghanistan mere months before, Iraq in 2003 was a target-rich environment. Also, the US military demonstrated its commitment to deliberate planning for airpower integration in joint operations. CENTCOM developed a deep understanding of the Iraqi military's vulnerabilities and centers of gravity during a decade of military involvement in the country. By 2002, the

25. Benjamin S. Lambeth, *Air Power Against Terror: America's Conduct of Operation Enduring Freedom* (RAND Corporation, 2005), 349.
26. Schinella, *Bombs*, 120.
27. Lambeth, *Air Power*, 97.
28. Lambeth, *Air Power*, 308.
29. Nicholas Blanchette, "Operation Enduring Freedom," in *Air Power in the Age of Primacy*, 116.

American campaign plan included 4,000 potential targets, broken into categories, that revealed a thorough knowledge of the threat.[30] This careful preparation resulted in a joint integrated prioritized target list with three days' worth of targets ready at the onset of hostilities.

Campaign planners at CENTCOM Air Forces (CENTAF) worked with national intelligence agencies, the CENTCOM intelligence and operations staffs, and the Joint Warfare Analysis Center from 2002 to 2003 to develop a target system analysis of Iraq and its military. One member working at CENTAF at this time noted that Air Force targeteers worked side-by-side with planners to tie all targets they developed for the campaign plan to the air commander's operational objectives. The air component hosted two targeting conferences in early 2003, where Air Force targeteers worked with other experts to review every target selected and refine every aim point for maximum effectiveness. Targeteers worked equally hard to determine the proper targets to include in the air campaign and to create a no-strike list of over 1,000 facilities. Overall, the target planning process, organizational collaboration, and Airmen's contributions seemed to match the vision of success outlined in Glock's 1994 article.[31]

The air campaign began on 21 March 2003, primarily to support ground operations. Most strikes were directed at dynamic targets instead of fixed facilities.[32] During the campaign, targeteers from the 480th Intelligence Group at Langley Air Force Base (AFB), a predecessor organization to what would become the Air Force Targeting Center (AFTC), provided specialized weaponeering support to deliberate target development efforts.[33] This support marked one of the earliest cases of a dedicated reachback targeting organization supporting an air war.

The dynamic targeting cell was a 25-person team of Airmen from various occupational backgrounds, including intelligence.[34] To say that this cell performed well would be an understatement; it developed over 3,000 targets and assigned over 2,000 for attack during the three weeks of major combat operations.[35] Targeteers were embedded throughout the combined air operations center sections, ensuring well-coordinated operations.

Assessments, however, remained an area of deficiency. The BDA process was overwhelmed in the campaign's early days, and "air planners had little sense of the progress they were making."[36] One key problem was the need for more timely intelligence products, namely satellite imagery. The service tried to mitigate this deficiency by using imagery and video

30. Benjamin S. Lambeth, *The Unseen War: Allied Air Power and the Takedown of Saddam Hussein* (Naval Institute Press, 2013), 21.

31. Lambeth, *Unseen War*, 34.

32. Heather Venable, "The Result is Never Final: Operation Iraqi Freedom," in *Air Power in the Age of Primacy*, ed. Phil Haun, 136.

33. Lambeth, *Unseen War*.

34. John M. Fyfe, *The Evolution of Time Sensitive Targeting: Operation Iraqi Freedom Results and Lessons* (Air University, College of Aerospace Doctrine, Research and Education, 2005), 11.

35. Lambeth, *Unseen War*, 205.

36. Venable, "Result," 137.

data from aircraft targeting pods to support the assessment process.[37] Even so, observers attributed many problems to the same old culprits: the absence of joint and service BDA doctrine, a shortage of qualified BDA analysts, and a lack of realistic training and exercise of the assessment process at the combatant command and within the air component.[38] The net result of these shortcomings was a slow, inefficient BDA process that failed to support operational commanders in their decision-making.[39]

These deficiencies aside, Iraqi Freedom marked the most prepared phase in the Air Force's history regarding overall targeting readiness. The service's familiarity with Iraq's military and its pre-war preparations in intelligence and targeting support enabled a successful air campaign. From target system analysis to target development and capabilities analysis, the Air Force demonstrated readiness with notable contributions from its reachback support units. Overall, the service performed well in preparing and executing the air campaign. Over the next eight years, while the Air Force remained engaged in sustained combat operations around the world, it would not face another major test of its deliberate targeting readiness until the rapid onset of the 2011 intervention in Libya.

Odyssey Dawn and Unified Protector (Libya, 2011)

The catalyst for an intervention in Libya came in February 2011 when protests began in Benghazi. An outcry from Libyans dissatisfied with Muammar Gaddafi's authoritarian rule escalated into armed resistance aimed at regime change. Gaddafi's violent crackdowns in response to the uprising triggered international condemnation. His allusions to a massive campaign to eliminate protesters brought his regime under additional scrutiny.[40] The United Kingdom and France were the first countries to call for an intervention to prevent political violence, and the UN passed a resolution to impose an arms embargo on Libya. America, meanwhile, quietly prepared to intervene.

On 19 March 2011, French planes dropped the first bombs on Libyan forces loyal to Gaddafi, beginning Operation Odyssey Dawn. The Libyan military, which some considered a "hollow and marginalized force" with a weak air defense system, was less threatening than some previous adversaries.[41] The coalition air campaign initially focused on integrated air defense targets and ammunition storage facilities but exhausted these strategic targets within a few days.[42] Therefore, discerning the state of the Air Force's deliberate targeting readiness when there were so few valuable targets at the start is difficult.

37. Lambeth, *Unseen War*, 183.

38. Lambeth, *Unseen War*, 273; and Fyfe, *Evolution*, 36.

39. Hugh Curry, "The Current Battle Damage Assessment Paradigm Is Obsolete," *Air & Space Power Journal* 18, no. 4 (2004), https://www.airuniversity.af.edu/.

40. Schinella, *Bombs*, 237.

41. Frederic Wehrey, "The Libyan Experience," in *Precision and Purpose: Airpower in the Libyan Civil War*, ed. Karl P. Mueller (RAND Corporation, 2015), 45–46.

42. Schinella, *Bombs*, 249.

Another reason this is challenging is that America made the decision early to limit the extent of its involvement relative to its previous humanitarian interventions in Bosnia and Kosovo.[43] As Air Force Lieutenant General Ralph Jodice II noted, no more than four US fighters operated in Libya at a time, and the United States only contributed about half of the coalition's air strikes during the Odyssey Dawn phase.[44] Once the campaign flipped to Unified Protector with NATO in the lead, America's military operated in a supporting role until the combat operations' end in October 2011.

Only 21 days passed between the time the US military began crisis action planning and the first airstrikes in Libya, and there was almost no current intelligence on the disposition of Libyan forces from which to initiate the planning process.[45] One senior Air Force targeting officer later recalled that at the outset of planning, many of the targeting records on Libyan military facilities were two decades old.[46] Much of the planning occurred at US Air Forces in Europe, with key support from the newly formed Air Force Targeting Center. The AFTC provided 78 percent of the coalition's targeting materials, which was crucial since many coalition partners had limited targeting capabilities.[47]

Coalition forces made it a point to avoid collateral damage; post-conflict analysis indicated that they minimized harm to noncombatants and damage to civilian infrastructure during the seven-month engagement.[48] Unfortunately, in Odyssey Dawn, BDA was once again an ad hoc process. After the conflict, the AFTC proposed internally "rewriting BDA procedures" and "reinvigorating training programs" to ensure BDA readiness was not a problem in future campaigns.[49]

Two other targeting themes stand out from the Libyan operations. First, Gaddafi's forces adopted insurgency tactics, including slowing down the conflict's pace to erode US resolve, concealing forces from airpower, commingling forces in cities, and using human shields to deter NATO airstrikes.[50] Many Libyan forces abandoned their military vehicles in favor of the same types used by rebel forces to confuse the coalition's dynamic targeting efforts.[51] In the age of high-tech precision warfare, these tactics continued a trend of adversaries using low-tech dispersal, camouflage, and deception to confound targeteers. Despite challenges inherent in countering such tactics, the Air Force must anticipate them in future conflicts.

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43. Christopher S. Chivvis, *Toppling Qaddafi: Libya and the Limits of Liberal Intervention* (Cambridge University Press, 2014), 5.
44. Schinella, *Bombs*.
45. Deborah Kidwell, "The US Experience: Operational," in *Precision and Purpose*, 113.
46. Retired Colonel Mike Flaherty, USAF, e-mail message to author, 14 May 2024.
47. Kidwell, "US Experience," 126.
48. Wehrey, *Libyan Experience*, 47.
49. Kidwell, "US Experience," 127.
50. Tami Davis Biddle, *Air Power and Warfare: A Century of Theory and History* (US Army War College Press, 2019).
51. Wehrey, *Libyan Experience*, 55.

Second, the coalition did not expand the list of potential targets to include Libyan infrastructure until late in the conflict.[52] This continues the trend of politicians, commanders, and planners to search for more targets near the air campaign's end—what one airpower analysis refers to as the "dynamic limits of airpower," noting that a lack of available developed targets typically factors in restricting the pace of air strikes. In response, the analysis argues for the long-term development of human capital and supporting career fields—presumably, those related to intelligence and targeting—that can sustain the pace and effectiveness of air campaigns over time.[53]

Is target scarcity during an air campaign a result of chronic under-resourcing or simply an endemic condition related to the challenges of coercion? The next major air campaign after Libya provides further insight into this dilemma. While the Air Force made significant strides in targeting readiness, the operations in Libya suggest that the limited availability of suitable targets and the tactics employed by adversaries continually pose challenges to airpower's employment.

Inherent Resolve (Iraq and Syria, 2014 to 2018)

Operation Iraqi Freedom did not eradicate al-Qaeda in Iraq. Instead, the group morphed and expanded over time, eventually rebranding itself as the Islamic State in Iraq and Syria (ISIS) around 2012. When ISIS declared itself a caliphate and staked its sovereignty over a 423-mile swath of land on 29 June 2014, America had no war plan ready or in development, much less any validated targets, to counter its rise.[54]

Eventually, America assembled and led a coalition of 82 nations to defeat ISIS in Operation Inherent Resolve, emphasizing air strikes and support for proxy forces instead of direct ground involvement. The United States struggled to develop a comprehensive strategy in the campaign's early days, relying on dynamic strikes and minimal kinetic exposure in support of a "limited risk, limited liability" operation. For over a year, there was no deliberate targeting campaign against ISIS. American aircraft flew 949 combat sorties and expended munitions on only 100 of them over the first three weeks of air strikes in Inherent Resolve. By comparison, the US Air Force had flown 3,500 combat sorties in that same period during Deliberate Force.[55]

While some have pointed to the rapid rise of the Islamic State and the limited intelligence available about the group early in the conflict as a hindrance to planning, others have cited the lack of deliberate targeting readiness as the primary reason for the air

52. Kidwell, "US Experience," 130.

53. Karl P. Mueller, "Victory Through (Not By) Airpower," in *Precision and Purpose*," ed. Karl P. Mueller (RAND Corporation, 2015), 383.

54. Becca Wasser et al., *The Air War Against the Islamic State: The Role of Airpower in Operation Inherent Resolve* (RAND Corporation, 2021), 85.

55. Wasser et al., *Air War*, 27.

campaign's sluggish start.[56] Former US Air Force Chief of Staff General Mark Welsh blamed this lack of readiness on manning cuts between 1992 and 2013 that drained expertise within the service.[57] Whatever the reason, a marked shift occurred after then-Lieutenant General Charles Q. Brown Jr. took command of AFCENT in June 2015.

Brown quickly tasked his staff with fixing the deliberate targeting process, which he called "broken."[58] In hindsight, the process may have been less inoperative than underutilized. Four months after Brown's claim, coalition aircraft were dropping bombs in high numbers on ISIS oil infrastructure for Operation Tidal Wave II, a deliberate targeting campaign designed to deny the Islamic State revenue from oil sales. Three months later came Operation Point Blank, featuring strikes against ISIS cash resources. Of all the case studies reviewed for this research, the air campaign against ISIS was the only one that moved from primarily dynamic strikes to a sustained period of deliberate targeting; typically, dynamic targeting becomes prevalent after exhausting initial target lists. Even so, dynamic targeting accounted for 85 percent of strikes in Inherent Resolve.[59]

The quick turnaround in the effectiveness of deliberate targeting occurred because targeteers and intelligence analysts were ready to support when needed. All-source intelligence analysts at the AFCENT headquarters at Shaw AFB were critical in bolstering the command's targeting operations in late 2015.[60] The combined air operations center in Qatar leveraged reachback analysis from the Air Force Distributed Common Ground System, a global real-time intelligence fusion organization, as well as the newly established 51st Intelligence Squadron. The AFTC set up the Target Development Cell to conduct a systems analysis of the Islamic State and develop targeting nominations for the air component.[61] This reachback analytic and targeting capacity, latent in the war's early stages, became critical to accelerating the pace of the air war against ISIS. For a campaign "plagued by hitting targets of opportunity instead of targets of strategic value" for so long, the leadership decision to prioritize deliberate targeting paid off quickly. Fittingly, as his time in AFCENT's command neared its end, Brown noted the air component's return to deliberate targeting fundamentals as his most significant accomplishment.[62]

The reachback targeting and analysis enterprise responded quickly once the joint force air component commander prioritized deliberate targeting and intelligence-gathering. By the end of 2015, the Inherent Resolve coalition was conducting strategic air campaigns against sources of ISIS strength despite initial setbacks. Although dynamic targeting remained a critical process throughout the conflict, the switch to deliberate targeting validated

56. Wasser et al., *Air War*, 51.
57. Benjamin S. Lambeth, *Airpower in the War Against ISIS* (Naval Institute Press, 2021), 215.
58. Lambeth, *ISIS*, 68.
59. Lambeth, *ISIS*.
60. Lambeth, *ISIS*, 81.
61. Chance Smith and Steve Rust, "Geographic Component Network Analysis: A Methodology for Deliberately Targeting a Hybrid Adversary," *Joint Force Quarterly* 88, no. 1 (2018): 75.
62. Lambeth, *ISIS*, 81.

the coalition's ability to harness its intelligence and targeting strengths, turning a flagging air campaign into one capable of methodically destroying ISIS' infrastructure and damaging its ability to wage war.

Lessons Learned

Over the past three decades, the Air Force's targeting readiness has improved in many areas, reflecting important institutional progress. While some practices deserve reinforcement, other persistent shortcomings demand corrective action. To that end, this analysis distills nine key lessons from the air campaigns discussed to guide future improvements in targeting readiness and effectiveness, emphasizing the enduring importance of thorough pre-conflict preparation, technical proficiency, and sustained operational and organizational discipline. While not comprehensive, they address recurring gaps in performance.

Other important factors—interoperability with coalition partners, for example—merit further research and analysis.

Systematic analysis of adversaries is necessary for an effective targeting campaign.

Airpower's coercive ability is amplified through robust peacetime analysis of potential enemies. Targeting campaigns based on sound nodal analysis yield better results, as seen in Deliberate Force and Iraqi Freedom. Even when delayed, as in Inherent Resolve, a systematic targeting campaign can still aid the Air Force in achieving success. Finding enemy vulnerabilities through target system analysis is vital in planning and waging effective air campaigns.

Planners must conduct adversary target system analysis, preferably well ahead of the initiation of hostilities, to run a coherent air campaign with tactical effects tied to strategic objectives.

Preplanned target lists will be exhausted during an air war.

Since Desert Storm, no air campaign has achieved its objectives without air component commanders noting a lack of worthwhile deliberate targets. Target shortages occurred in robustly planned conflicts like Deliberate Force and unplanned ones like Odyssey Dawn. Shortages also appeared in air campaigns with early intense bombings, like Iraqi Freedom, and more measured ones, like Allied Force. Endemic target scarcity likely stems from a combination of inadequate planning, adversary resilience, the adaptive nature of target systems, and enemy efforts at denial and deception. Commanders must have a plan before a crisis to enable their organizations to perform the deliberate targeting process at the speed of relevance, before and during conflict.

Combatant commanders and combined force air component commanders, in conjunction with the National Geospatial-Intelligence Agency and the Defense Intelligence Agency, must prioritize target record currency in the Modernized Integrated Database to enable the creation of robust target lists during crisis planning. Additionally, deliberate

target development should be a focal point in all major combat exercises to ensure the force can operate the joint targeting process at speed and scale in combat.

Collateral damage mitigation and civilian casualty restraints are facts of modern air war.

National leaders have imposed restrictions on air forces to limit death and destruction in every significant air campaign since World War II. Military members must remember that targeting restrictions and rules of engagement serve a broader purpose: they allow strategic audiences to understand military violence as appropriate, politically and morally acceptable, and legitimate.[63] This understanding is especially important in today's hyper-connected world, where the audiences of US operations extend beyond the enemy and its borders and a compelling strategic narrative is an increasingly important variable in tallying victory and defeat.[64] Military instruments serve policy objectives, and airpower as a coercive tool must operate under restraints in limited war.

Weaponeering, CDE, and precise point mensuration have benefitted from career specialization, continual training, and doctrinal maturation. The professionalism of the Air Force targeting community is evident in its readiness in these areas at the outset of all air campaigns over the past three decades. These must remain areas of training specialization and should be increasingly practiced in major combat exercises.

Precision-guided munitions will become scarce during an air war.

PGMs are limited and expensive but vital for military commanders to make progress in an air campaign under rules of engagement. None of the campaigns studied here approached the intensity of World War II, yet the US military still ran low on PGMs in many cases. Policymakers and commanders must either succeed in energizing the defense industrial base to produce these weapons more expeditiously in peacetime or be prepared to use less precise weapons against some target sets in major combat operations.

Commanders must prioritize selecting critical enemy vulnerabilities as priority targets and maximizing the inclusion of nonkinetic targeting options at an air campaign's start to conserve PGM stocks. Additionally, policymakers and military leaders should predetermine target sets where less precise weapons are acceptable for prolonged conflicts.

Targeting assessment has been plagued by a lack of readiness.

Apart from the most recent engagement against ISIS in Iraq and Syria, the Air Force's readiness for the assessment phase of the joint targeting cycle could have been better. In four cases, leaders noted the inadequacy of targeting assessment in understanding air

63. David A. Koplow, *Death by Moderation: The US Military's Quest for Useable Weapons* (Cambridge University Press, 2010), xi.

64. Emile Simpson, *War From the Ground Up: Twenty-First-Century Combat as Politics* (C. Hurst, 2018), 74.

campaign progress. The Air Force Targeting Center's focus after Odyssey Dawn on training and certifying BDA analysts and exercising the process paid off during Inherent Resolve. Yet, these gains were limited to phase one (physical damage) and phase two (functional damage). No examples exist of an analytic team effectively assessing damage to the enemy target system (phase three) mid-conflict. It is worth considering if analysts have reached the limits of clarity in targeting assessment, a question that warrants further interdisciplinary research in systems thinking and data analysis.

Training and certifying BDA analysts and exercising the assessment process before conflict improves readiness. Every combined force air component commander should ensure their command has a plan to surge BDA support in conflict, they routinely exercise the assessment process, and a strong relationship exists between their intelligence, operations, and operations research teams.

Reachback targeting support is not new but remains necessary.

In preparing for Kosovo, the air component called on units spread across five countries for target planning. Prior to the 2003 Iraq air campaign, CENTAF called on the Joint Warfare Analysis Center and Langley AFB personnel for systems analysis and targeting support. In both cases, the air campaigns benefited from outside expertise. The best action the Air Force could have taken was to make reachback targeting more accessible to CFACCs before and during a crisis, which it did by establishing the AFTC. In 2011, the AFTC produced 78 percent of the targeting materials for the Odyssey Dawn/Unified Protector air campaign and supported the full spectrum of target development and assessment tasks during Inherent Resolve.

The Air Force made the right move in establishing the AFTC (now the 363rd Intelligence, Surveillance, and Reconnaissance Group) as a single focus point for deliberate targeting support. Service leaders should recognize its positive impact on targeting readiness and avoid reducing its capacity.

Dynamic targeting is an important Air Force function.

Finding and striking emerging targets is critical due to the persistent shortage of deliberate targets in conflict and adversaries' efforts to counter America's advantages in precision weaponry and battlespace awareness through dispersal and deception. The Air Force must retain and mature its ability to find, fix, and finish targets in near-real time. While dynamic targeting shares similarities with deliberate targeting, it requires greater speed, adaptability, and understanding of current operations. As technology advances, the need to operate faster than the adversary will make dynamic targeting even more critical.

Effective coercion with air forces involves dynamic targeting, which requires trained personnel, advanced technology, and codified processes. Targeteers must be skilled in both deliberate target development and dynamic target prosecution.

Targeting will be joint, combined, or (likely) both.

The United States conducted all six campaigns in this analysis as part of a multinational coalition, and in all but one—Allied Force—it operated alongside other service components. This trend shows no sign of reversing.

Targeting doctrine, training, equipment, and procedures must be joint and combined by design to prevent operational setbacks caused by interoperability shortfalls.

Targeting expertise is always in demand—and must be deliberately cultivated across career fields.

The core purpose of an air force is to deliver or credibly threaten violence in, from, and through the air in support of national policy objectives. That mission depends on targeting excellence, which requires deep technical mastery and broad interdisciplinary understanding. Targeting draws on intelligence, operations, strategy, law, psychology, and history, and as such, no single Air Force Specialty Code (AFSC) owns it. Historically, the Air Force cultivated this expertise in a dedicated targeting officer career field—one that contributed significantly to the Gulf War's targeting successes. Yet, the service eliminated that field in the post–Cold War drawdown and the consolidation of intelligence AFSCs in the 1990s, which contributed to a gradual erosion of targeting expertise.[65]

Rebuilding this capacity requires more than reestablishing an enlisted targeting pipeline; it demands intentional career development for officers in both intelligence and operations. A viable model includes early assignment to a bomb-dropping unit, followed by Joint Targeting School, experience at an air operations center, and ideally, mentorship at the 363rd Intelligence, Surveillance, and Reconnaissance Group. This pathway is not prescriptive, but merely one example of a model to foster targeting excellence. Such cross-functional development can prepare officers to lead—rather than merely support—the targeting enterprise across the full spectrum of air operations.

The Air Force must develop targeting leaders deliberately across both intelligence and operations officer career paths. While technical specialization is essential for target development tasks, effective leadership in targeting demands breadth, joint fluency, and campaign-level experience. The Air Force should institutionalize a development path that includes early exposure to operational units, formal targeting training, and experiential learning in air operations centers and specialized reachback. Campaign planning and targeting should be core elements of intelligence officer training and broader professional military education, ensuring the joint targeting cycle becomes a unifying concept across airpower disciplines. ✈

65. Glock, "Evolution."