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## **Optimizing After Action Reports in Air Force Contracting: Enhancing Operational Insights and Future Mission Performance**

December 2024

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Approved for public release; distribution is unlimited.

Prepared for the Naval Postgraduate School, Monterey, CA 93943

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## ABSTRACT

This research examines how the Department of the Air Force (DAF) Contracting can enhance its After-Action Report (AAR) process to systematically capture, analyze, and apply operational insights for improved mission performance. The hypothesis posits that a structured, stakeholder-driven approach to AARs can address gaps and provide actionable outcomes that enhance readiness and adaptability in a dynamic threat environment. Using the Hacking-for-Defense™ methodology within the Lean Launchpad framework, the study employed systems thinking to analyze stakeholder needs and operational requirements across DAF Contracting. Key methods included developing a standardized, adaptable AAR template and a proof-of-concept for text analysis using artificial intelligence to derive actionable insights. Results indicate that effective AAR optimization requires leadership advocacy, centralized data systems, targeted training, and ongoing stakeholder collaboration. Conclusions highlight the critical role of structured AAR processes in supporting mission success and organizational learning. Recommendations include immediate implementation of the developed solutions, integration into the Air Force Force Generation (AFFORGEN) model, and future research to expand automation and scalability. This study demonstrates that systematic improvements to the AAR process are feasible, impactful, and essential for DAF Contracting to meet evolving mission demands.



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having each other's backs, the natural synergy we shared, and the lifelong friendships we have built!







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## LIST OF ACRONYMS AND ABBREVIATIONS

A7K	Contracting Directorate
AAR	after-action report (review)
ACE	agile combat employment
AFCAP	Air Force Contract Augmentation Program
AFCENT	Air Forces Central
AFFORGEN	Air Force Force Generation
AFI	Air Force Instruction
AFICC	Air Force Installation Contracting Center
AMC	Air Mobility Command
AI	artificial intelligence
AOR	area of responsibility
CCO	contingency contracting officer
CLD	causal loop diagram
CO	contracting officer
CONS	Contracting Squadron
CUI	controlled unclassified information
CSAF	Chief of Staff of the Air Force
DAF	Department of the Air Force
DoD	Department of Defense
EAB	Expeditionary Air Base
FAM	functional area manager
FEMA	Federal Emergency Management Agency
GPC	Great Power Competition
GPT	generative pre-trained transformers
H4D	Hacking-for-Defense
INDOPACOM	Indo-Pacific Command
JLLIS	Joint Lessons Learned Info System
KQ	Contingency Contracting Directorate
MCCLL	Marine Corps Center for Lessons Learned



MCLLP	Marine Corps Lessons Learned Program
MCO	Marine Corps Order
MMC	mission model canvas
MVP	minimum viable product
NLLIS	Navy Lessons Learned Information System
NLLP	Navy Lessons Learned Program
NLP	natural language processing
OAB	Operating Air Base
OCS	operational contract support
OPNAVINST	Office of the Chief of Naval Operations Instruction
PACAF	Pacific Air Forces
SCO	senior contracting official
SEL	senior enlisted leader
SME	subject matter expert
USAF	United States Air Force
USAID	U.S. Agency for International Development
UDM	unit deployment manager
USAFE	United States Air Forces Europe
UTC	unit type code
UTM	unit training manager
VPC	value proposition canvas



## I. INTRODUCTION

How can the Department of Air Force (DAF) Contracting optimize its after-action report (AAR) process to systematically capture, analyze, and apply operational insights that enhance future mission performance in an evolving threat environment? This central question drives this research as the Department of Defense (DoD) navigates what Secretary Lloyd Austin cites as a “decisive decade” marked by continued uncertainty due to various global conflicts (U.S. Department of Defense, 2024). General David Allvin, the Chief of Staff of the Air Force (CSAF), penned *The Case for Change: A Legacy of Adaptation*, emphasizing that “to remain ready, the United States Air Force must change” and continue to adapt to emerging threats (U.S. Air Force, 2024). These uncertainties and threats, known broadly as “Great Power Competition” (GPC), represent an emerging security environment, the rapid evolution of warfighting capabilities, and the presence of formidable state actors and transnational threats such as the People’s Republic of China and the Russian Federation (U.S. Air Force, 2024).

Contracting leadership released the DAF Contracting Flight Plan, the strategic playbook for DAF Contracting professionals to address these challenges. The Flight Plan operationalizes the imperatives from the National Defense Strategy and Case for Change through Line of Effort 4: Expeditionary Contracting as a Joint Force Capability (Department of the Air Force, 2024a). This line of effort establishes how contingency contracting officers (CCOs) support the joint force in the face of GPC through force readiness, characterized by:

- Formalizing the cross-sharing of information between higher headquarters and CCOs in the field
- Integration of operational contract support (OCS), field ordering officers, and non-organic support into training objectives
- Integration of Air National Guard personnel into exercises and contingency operations
- Incorporation of OCS concepts and materials into a broader educational platform for stakeholders across all functional communities (Department of the Air Force, 2024)

The design of a revised AAR template for the contingency contracting enterprise directly addresses these strategic priorities and the primary research question. Through



systematic analysis and stakeholder engagement, this research demonstrates how an optimized AAR framework can:

- Enhance decision-making through structured capture of operational insights
- Support rapid learning and adaptation from field experiences
- Enable identification and codification of supply chain vulnerabilities
- Foster critical thinking and problem-solving across the workforce
- Provide data-driven feedback to shape acquisition strategies, training, and innovation

This research argues that AARs are not merely administrative tools but vital instruments for translating strategic guidance into tactical excellence. The research team demonstrates through their analysis that AARs represent a viable, cost-efficient, and comprehensive solution for connecting strategic imperatives with operational execution.

## **A. MOTIVATION**

“After Action Reviews have proven to be the single most important event in collective training.”

—U.S. Army Training and Doctrine Command

At the core of this project is an effort to catalyze generational change for current and future stakeholders by shifting from a mindset of “how things were or are done” to “what needs to be done or how to do it better” to empower CCOs in executing high-level strategy into real-world mission support. After-action reviews or reports are utilized across military services and federal and civilian organizations today; however, DAF Contracting does not make AAR-generation mandatory after exercises or operational missions like the Army (Department of the Army, 1993).

This research argues that AARs are indispensable for CCOs, mission planners, leaders, and other stakeholders who depend on timely, actionable insights in dynamic environments. Unlike static resources like lessons learned documents or site surveys, AARs provide real-time, mission-specific feedback that bridges operational execution and strategic improvement. Their iterative nature enables immediate reflection, adaptation, and change implementation, ensuring direct performance outcomes inform



decisions. By complementing broader retrospective tools, AARs remain critical for sustaining readiness and driving continuous improvement.

Developing an AAR template addresses the following motivations: enhancing feedback, improving readiness, capturing systematic learning, improving institutionalized cross-sharing of information, increasing DAF CCO equities as joint force enhancers, and aligning mission performance with emerging challenges. Qualitative analysis, experiential learning, and the authors' personal experiences underpin the observation that the AAR process is not a meaningless exercise or afterthought—it is a vital learning and planning tool that can enhance operational efficiency while significantly impacting the warfighter and mission success.

Learning, adapting, and improving are essential for survival and success. As the Flight Plan outlines, contracting professionals must critically evaluate their strengths while swiftly applying lessons learned to develop robust operational capabilities. They must integrate relevant real-world experiences into training, enhance stakeholder participation and awareness, and drive innovation, all of which are directly supported by effective AARs (Department of the Air Force, 2024a).

The concepts presented in this paper showcase the research involved in understanding the operational environment as they align to feedback loops, capturing lessons learned, and implementing best practices. Rather than approach the redesign of an AAR template head-on, the methodology involved sought to refine the project's scope through a system-of-systems (SoS) approach by looking at how similar and dissimilar nodes of information connect to form a broader yet cohesive picture.

## **B. BACKGROUND**

According to Morrison and Meliza (1999), subject matter experts (SMEs) at the U.S. Army Research Institute for the Behavioral and Social Sciences wanted to provide participants and observers with valuable insights by aligning training outcomes and objectives to relative combat performance. Additionally, the authors note that in the 1970s, the Army developed a process known as the after-action review to impart soldiers



with feedback on unit performance following training exercises by answering the following questions:

- What happened?
- Why did it happen?
- How can units improve?

Morrison and Meliza's (1999) research highlights a unique requirement mandating the Army to complete reports immediately following exercises or complex events through "AAR sessions." These sessions are team-focused, beginning with platoons, followed by the company, and then by the battalion. Furthermore, the authors explain how designated "AAR leaders" spend significant time preparing for AAR sessions by collecting data, aggregating performance metrics, reviewing exercise objectives, and soliciting feedback through open-ended questions from participants once the event is over to determine what happened to improve performance (Morrison & Meliza, 1999). The end product is a collection of findings captured in a vetted report used as a training aid to enhance future outcomes. To the Army, AARs are not merely administrative tools and tasks but cultural artifacts deeply embedded into their operational readiness, serving as a powerful mechanism for capturing and disseminating lessons learned, best practices, and critical insights at all levels of the organization (Morrison & Meliza, 1999).

In their research, Mastaglio et al. (2011) further underscore that AARs are subject to variability due to the different philosophies of the AAR leader (or facilitator), the trainers who rely on and interpret their content, and the trainees who synthesize the lessons from the reports. The authors argue that the AAR facilitators ought to have a fundamental understanding of AAR principles, such as recognizing the difference between feedback and critiques, facilitating team learning, and employing effective communication skills to elicit self-correction and self-learning from their trainees. These aspects are integral because the authors suggest that the AAR process should follow a theoretical framework of design rooted in psychological and behavioral sciences. However, common practice shows that the AAR framework is maligned by constraints like temporal limitations, resources, adequately trained personnel, or a lack of leadership advocacy (Mastaglio et al., 2011).





Unlike the Army's mandatory and structured approach, DAF Contracting's voluntary AAR process has resulted in inconsistent documentation of lessons learned, limited access to historical insights, and missed opportunities for systematic improvement. These deficiencies will become particularly apparent during the rapid force posture changes required by the Air Force Force Generation (AFFORGEN) framework. CCOs will face potential challenges in quickly accessing and applying relevant historical insights. The lack of a standardized framework has led to varying quality in AAR content, difficulties in cross-command information sharing, and limited ability to conduct meaningful trend analysis across multiple operations.

### **C. AFTER-ACTION REPORTS IN DAF CONTRACTING**

Unlike the Army, DAF Contracting personnel are not doctrinally mandated to complete an AAR (Department of the Army, 2022). While soldiers and AAR teams must generate, review, and apply lessons learned from each event, Air Force CCOs may complete an AAR if required by their Major Command (MAJCOM) or unit leadership.

Typically, when completing an AAR, a designated SME within the Future Operations Cell of the Air Force Installation Contracting Center (AFICC) quality reviews it to ensure it meets the required standards. If the SME identifies areas needing changes or further clarification, they work with the AAR author to address these issues and refine the report. After making the necessary revisions and gaining the SME's approval, the AAR is finalized and filed in an internal repository that the reviewing organization maintains.

However, storing AARs in separate, organization-specific repositories can lead to a siloed approach to knowledge management. Instead of maintaining a centralized, easily accessible location for all AARs across the DAF Contracting community, the reports are often dispersed across multiple internal databases and file systems. This fragmentation can hinder the effective dissemination of lessons learned, as personnel from different organizations may need more visibility into or access to AARs generated by their colleagues in other units. The lack of a unified, enterprise-wide repository can make it more difficult to conduct comparative analyses, identify trends, and leverage insights from a comprehensive set of AARs. Consequently, the siloed nature of AAR storage can



limit the potential for cross-organizational learning and collaboration, hindering the ability of the contracting community to improve its operations and adapt to emerging challenges collectively.

Interviews with CCOs and contracting staff personnel at the MAJCOM level revealed that AARs could have been helpful for operational planning. However, there were several barriers to their utilization, such as a need for current AARs, substantive AAR data that captured lessons learned, and obstacles to accessing reports across commands. Instead, staff personnel, mission planners, and CCOs relied on conventional methods like internet searches, continuity binders, in-person turnover before redeployment, site surveys to establish a baseline understanding of the operational landscape, reach-back support to a home station network, or working with SMEs in-country.

#### **D. RESEARCH METHODOLOGY OVERVIEW**

This research examines how DAF Contracting can optimize its AAR process to systematically capture, analyze, and apply operational insights that enhance future mission performance. Through systematic investigation and stakeholder engagement, the research team sought to develop practical solutions that address current operational needs while supporting broader strategic objectives.

#### **E. PROJECT SCOPE AND DELIVERABLES**

The project focused on two primary objectives:

- Develop an optimized AAR template that provides consistent, quality feedback while remaining flexible enough to address diverse operational needs
- Demonstrate how modern text analysis capabilities could enhance the utilization of AAR data for operational planning and decision-making

These deliverables aim to reinvigorate the AAR process within DAF Contracting by providing tools that enable systematic capture and analysis of operational insights. While developing these solutions, the research team identified opportunities for broader implementation across the enterprise, and later chapters explore these opportunities in detail.



## **F. SUMMARY**

This chapter introduces the DoD's imperative for driving transformative change across its services in response to global challenges, such as GPC. The research develops an optimized AAR template tailored to the DAF contingency contracting community to support these objectives. Drawing from historical and current AAR practices, the research team explores generalized questions to frame a sustainable and impactful tool for AAR processes.

The AAR template aims to catalyze generational improvements by equipping CCOs and stakeholders with a mechanism to translate strategic directives into enhanced training, planning, and mission support. The chapter also outlines a proof-of-concept leveraging GPTs for processing large datasets, allowing the efficient synthesis of multiple AARs into actionable information tailored to diverse stakeholder needs.



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## II. PHASE I–FOUNDATIONAL RESEARCH

This chapter outlines Phase I of a comprehensive research effort to understand and optimize the AAR ecosystem within DAF Contracting. This phase focuses on project scoping, foundational research, and systematic analysis of existing practices. Through a literature review, systems thinking, and evaluation of industry standards, the study identifies critical challenges and validates the need for a structured methodology to improve AAR processes. The team establishes a solid foundation for developing targeted solutions by employing analytical approaches and addressing fundamental research questions.

Phase I foundational research proved essential for:

- Defining the scope and boundaries of the AAR ecosystem
- Understanding existing theoretical frameworks and practices
- Identifying key challenges and opportunities
- Establishing a baseline for methodology selection
- Validating the need for systematic process improvement

These foundational insights from Phase I highlighted both the complexity and potential of the AAR ecosystem, validating the importance of a structured approach to address identified gaps and challenges. With a clearer understanding of the landscape, the research team explored and framed the central problem areas, guided by essential questions that would shape the development of targeted solutions in subsequent phases.

### A. PROBLEM EXPLORATION AND FRAMING

*Are AARs still valuable for today's CCOs and other beneficiaries? What is valuable data and how do we capture repeatable, quality results for each report? Who uses this information and what kind of changes occur from AARs?*

These fundamental questions guided the initial phase of this study. Before adopting a specific methodology, the research team developed a structured framework to anchor their preliminary investigation into the AAR ecosystem. The questions outlined in Table 1 provided a structured basis for reviewing existing literature, identifying key themes, and understanding the full scope of AAR utilization across military and civilian



sectors. This framework enabled a systematic investigation into how AARs function within varied organizational contexts, their role in knowledge management, and their potential for enhancing operational effectiveness.

Table 1. Initial Research Questions

Category	Question
<b>Value and Impact of AARs</b>	What is the value of the AAR to CCOs and does it have the potential to influence mission effectiveness?
	Are AARs needed to document lessons learned, best practices or mistakes? How do they provoke critical thinking to drive actionable change?
	How do AARs support decision-making when other methods are available to source information?
<b>Training and Stakeholder Alignment</b>	How (or does) current AAR training occur and are stakeholders aligned with their roles and responsibilities for codifying, synthesizing and utilizing its content?
<b>Perceptions and Utilization</b>	What are the current perceptions of AAR effectiveness within the career field, such as its practical application, limited usefulness or impact on various operations?
	Are there any barriers to AAR utilization, such as a lack of a centralized repository to house a template or completed reports, inconsistent content requirements and quality, inadequate integration in the mission planning process or perceived redundancies in captured information?
<b>Process Improvement</b>	How can standardizing AARs improve the consistency and usefulness of operational insights?
	What elements are necessary for an effective AAR?
	How can feedback loops be implemented to ensure continuous improvement and application of lessons learned?
	What best practices from industry and other military branches can be adapted to improve the AAR process?
<b>Strategic Alignment</b>	How do AARs align with the AFFORGEN framework?
	Do AARs have a place in an environment postured to respond to GPC?

While understanding the technical aspects of AAR design and the strategic relevance of each component was necessary, it proved insufficient on its own. Too and Weaver (2013) emphasize that organizations must recognize the critical link between AAR outputs and agency objectives to generate optimal value from innovations and process improvements. This insight shaped the team's research questions and approach to understanding the broader context of change management and organizational development within the unique complexities of the CCO and OCS environments.



## **B. LITERATURE REVIEW**

The scholarly literature on AARs provides crucial theoretical and practical insights for this research. Through a systematic review of academic studies, military doctrine, and organizational practices, several key themes emerge that inform the development of an optimized AAR framework. Importantly, studies emphasize AARs' significant role in fostering organizational learning and operational improvement (Jackson & Keys, 1984; Sterman, 2000). Although many sectors, such as the Army and the Federal Emergency Management Agency (FEMA), highly regard AARs, ongoing obstacles highlighted in the literature hinder their effectiveness. For example, Messer (2022) identifies challenges such as uneven implementation, resource constraints (including time and skilled personnel), and a common gap between insights gained and actions taken.

Building on this understanding, the Air Force's current approach to AARs, as outlined in Air Force Instruction (AFI) 90-1601, exemplifies specific hurdles encountered in practice. In contrast to more structured frameworks in other services, the Air Force offers only a basic template without mandating its application or adapting it to unique organizational needs. While this flexibility aims to cater to varied mission requirements, it often results in quickly drafted, minimally structured memorandums for record. Consequently, this generic approach leads to inconsistent documentation practices across units, complicating the aggregation of lessons learned and the identification of overarching trends (Layland et al., 2020).

Several specific challenges evidence these documentation inconsistencies:

- Varied format and content across units
- Limited analytical depth in recorded observations
- Difficulty in tracking any implementation of lessons learned
- Reduced value for future planning and operational efforts
- Minimal integration with broader organizational learning frameworks

To address these limitations, Sterman's (2000) research on system dynamics provides valuable insights by proposing integrating "systems modeling" to pinpoint leverage points for organizational development. The rise of accessible technologies offers promising solutions to enhance AAR processes. For instance, a recent study by Cates et



al. (2022) explores the use of machine learning and natural language processing (NLP) tools, such as ChatGPT, to enhance FEMA’s ability to derive actionable insights from AARs conducted post-exercise, disaster, or response. These technologies represent a forward-looking approach that could significantly elevate the analytical depth and utility of AARs.

The following sections establish the theoretical foundation for understanding AARs and their significance in organizational learning. It combines established military doctrine with modern systems thinking, showing how AARs serve as more than just feedback tools but as critical components of organizational improvement and knowledge management.

## **1. Feedback Loops**

The U.S. Army’s Training Circular 25–20, A Leader’s Guide to After-Action Reviews, is the foundational doctrine for AARs (Department of the Army, 1993). This document established AARs as formal feedback tools to capture the strengths and weaknesses of personnel and events. Other studies view AARs as critical components to feedback loops within complex systems, allowing organizations to identify failures and develop improvement solutions (Stermann, 2000).

## **2. Best Practices**

Successful implementation of lessons learned from AAR data relies on several best practices established in the literature. Jackson and Keys (1984) emphasize the critical role of timeliness, observing that AAR feedback is most effective when captured immediately after an event, as the details are freshest and more accurate. Building on this, Sterman (2000) emphasizes the critical role of engaging all key stakeholders in the AAR process to foster openness and capture various perspectives. These diverse inputs are vital to developing actionable, well-rounded recommendations.

The experiences of Air Forces Central (AFCENT) Contracting Directorate (A7K) leadership demonstrate these principles. During the domain discovery phase, former AFCENT leaders showcased how systematic AAR analysis drives operational excellence. Their analysis of field feedback led to several strategic enhancements:





- More effective pre-deployment preparation based on identified patterns
- Streamlined operations addressing common field challenges
- Updated training programs targeting frequently reported issues
- Enhanced cross-functional collaboration through shared insights
- Expanded CCO authority through Air Force Contract Augmentation Program (AFCAP) warrants, enabling more efficient contingency contracting execution and oversight

However, A7K staff also identified significant challenges in standardizing best practices due to inconsistent AAR formats and content across units. The lack of a unified, centralized repository results in underutilized valuable insights, especially when multiple channels submit AARs without standardization.

To address these challenges, AFCENT leadership has proposed two solutions: developing experience-level appropriate AAR templates and repositioning AARs as essential “turnover documents” within the AFFORGEN cycle to ensure continuity across command teams, CCOs, and other key personnel.

AFCENT’s experience exemplifies how methodical AAR analysis and implementation can foster a culture of continuous improvement. Organizations can transform AAR insights into concrete strategies that enhance readiness and operational resilience through refined processes, data-driven decision-making, and appropriate authority delegation (e.g., issuing AFCAP-specific warrants to Air Force CCOs).

### **3. AAR Implementation**

Three reoccurring challenge areas for AAR implementation pertain to standardization, resource constraints, and practical application of lessons learned. Messer (2022) argues that the need for standardization across organizations for AAR templates and facilitation styles leads to consistent data collection. He further recognizes that these variations lead to challenges when comparing results across different units, operations, or events. Additionally, resources like time, personnel, and budgetary limitations may restrict the scope, frequency, and depth of AARs; this is especially true in smaller organizations during periods of high operational tempo like deployments (Jackson & Keys, 1984).



The most critical challenge with AAR implementation is creating value between the practical application of lessons learned. Sterman (2000) asserts that maximizing the long-term benefits and impacts of AARs requires proper documentation, methods for information-sharing, and integration of findings into future training opportunities and operations. He further states that while AARs generate valuable insights, many missed opportunities occur due to a failure to systematically apply operational insights because of a lack of internal controls, needing an overarching AAR process, or a failure to close feedback loops.

#### **4. Standardization and Structure**

Mastaglio et al. (2011) argue that having a consistent AAR format with standardized questions helps guide productive discussions and feedback sessions and enables analysis across multiple AARs. Foundationally, the authors posit that AARs should include common guiding questions:

- What was supposed to happen?
- What actually happened?
- Why were the outcomes different?
- What went well and why?
- What can be improved and how? (Mastaglio et al., 2011)

Critical aspects of the AAR structure include facilitation of the writing process, timing of AAR completion, and participation of stakeholders. The Army has assigned AAR facilitators trained in all aspects of implementation and synthesis. Mastaglio et al. (2011) highlight that skills in facilitating AAR generation are crucial for capturing key insights and honest dialogue. Involving key stakeholders in some capacity is essential to allow for diverse perspectives and diverse learning (Morrison & Meliza, 1999). It is necessary to recognize the value of feedback loops and consistent follow-up to capture and apply operational insights effectively. In their research, Mastaglio et al. (2011) underscore the importance of a process to track and implement recommendations, which binds AAR data to organizational improvement. Finally, timing AAR completions as soon as possible following an event ensures that details are fresh and accurate (Morrison & Meliza, 1999).



## 5. System Dynamics and Strategic Thinking

System dynamics plays a pivotal role in understanding and optimizing AAR processes. Sterman (2000) presents system dynamics as a comprehensive framework for analyzing complex organizational systems, particularly emphasizing how different elements interact and influence each other over time. This approach is valuable for understanding AARs within the context of broader organizational learning and improvement.

- **Beyond Linear Thinking:** Traditional linear thinking often leads to shortsighted solutions that fail to address the complex nature of organizational challenges. Sterman (2000) argues that system dynamics modeling enables organizations to visualize the interactions of different elements within a system, from organizational culture and training to socio-economic relationships and emerging challenges like GPC. This nuanced understanding helps identify leverage points for systemic improvement while accounting for both intended and unintended consequences of organizational changes.
- **System-of-Systems Perspective:** Building on Sterman's work, Maier (1998) introduces the concept of an SoS, which provides valuable insights for understanding AAR processes within complex military organizations. In the context of AARs, this perspective reveals how various elements—like individual CCOs and command-level policies—operate independently from each other while contributing to broader organizational outcomes. The AAR process represents an SoS comprising multiple interdependent elements such as data collection tools, analysis frameworks, and dissemination channels across units or commands.
- **Analytical Tools:** This research employs two fundamental system dynamics thinking or sense-making tools—system bounding and causal loop diagrams (CLDs). While the following examples do not pertain directly to AARs, the research team developed them to illustrate the valuable insights these methods provide. System bounding, depicted in Figure 1, defines the scope and boundaries of analysis by identifying overarching thematic hubs that impact contingency contracting and delineating the internal and external forces influencing CCO training as they relate to the demands of high-end conflict in the Indo-Pacific Command (INDOPACOM). Complementing this, Figure 2 presents a CLD (created using STELLA™ by iSee Systems), mapping interdependencies within this environment. The CLD diagram highlights cause-and-effect relationships that influence specific outcomes over time, illustrating how interventions, such as improved training, can propagate through the system to enhance readiness and operational effectiveness. Together, these tools can provide a comprehensive approach to analyzing



the internal and external elements that strengthen the adaptability and resilience of the AAR framework.

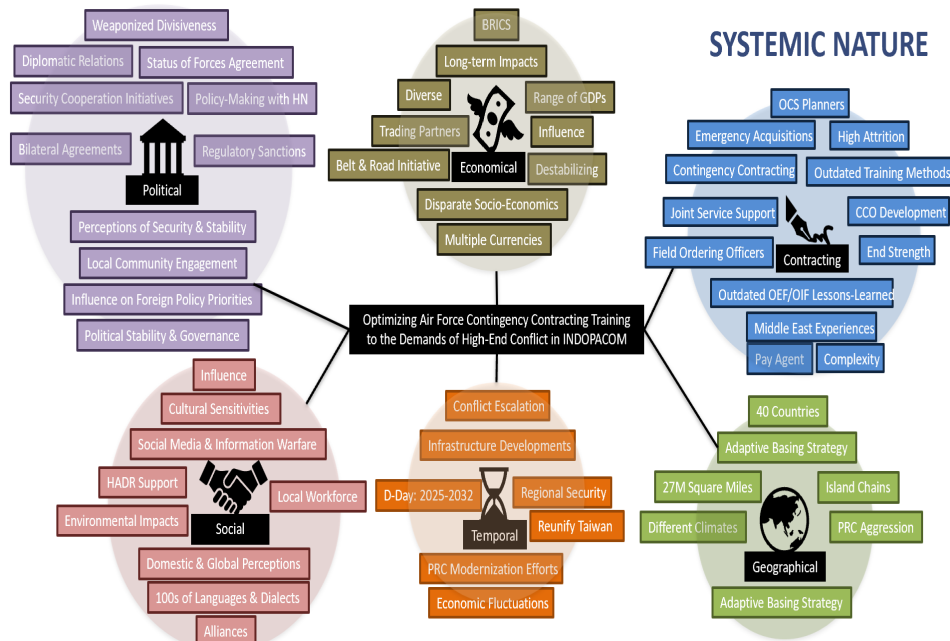


Figure 1. Systemic Nature of Contingency Contracting Training

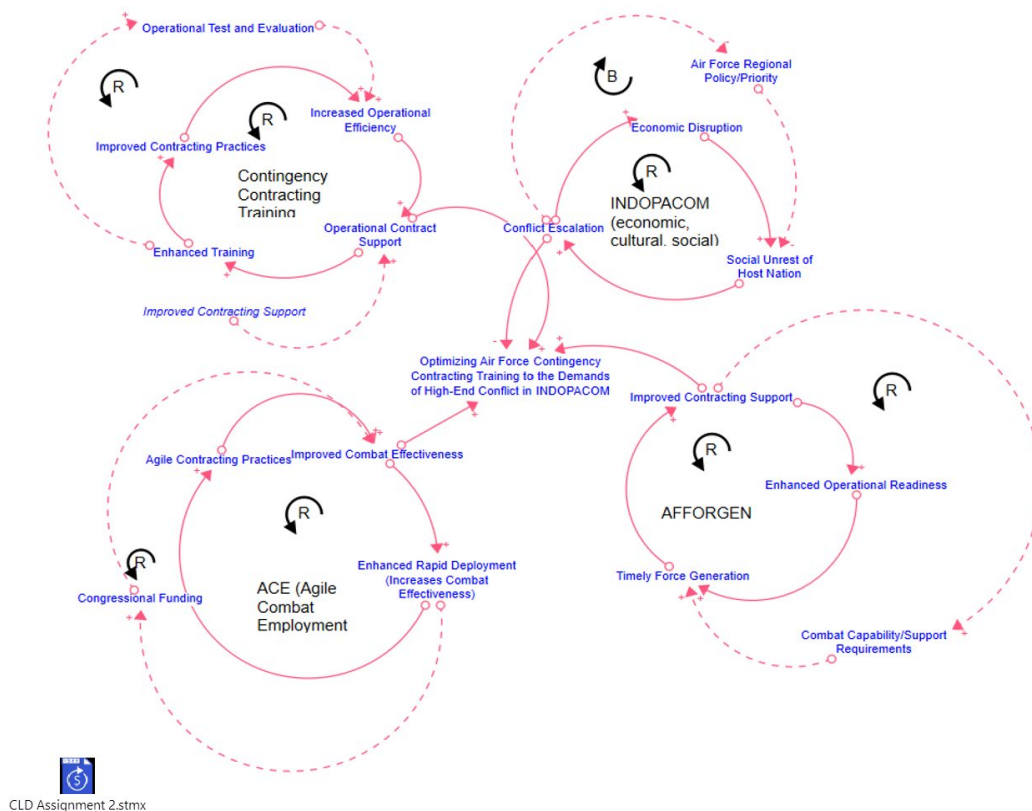


Figure 2. Causal Loop Diagram for Contingency Contracting Training

## **6. Emerging Technologies**

More recent scholarly research has focused on integrating advanced technologies into the AAR process. Cates et al. (2022) explore the potential of NLP and machine learning to automate data collection and analysis for FEMA. These tools can handle vast amounts of organized data (e.g., spreadsheets) and unstructured data (e.g., text documents), detect patterns and trends, and quickly generate customized reports for analysis, revealing insights that might not be immediately visible through manual review (Cates et al., 2022).

## **7. Existing Air Force AAR Research**

Messer's (2022) research addressing the challenges and potential improvements of the AAR process within the Air Mobility Command (AMC) reinforces the thematic findings from the literature review. His study emphasizes the importance of using these tools to capture lessons learned as pathways to contribute to institutionalized learning and identifying barriers to utilizing their potential.

Focusing on challenges, one critical issue with standardizing AARs is balancing content consistency with the flexibility to capture information. Messer (2022) argues that over-standardization may limit the effectiveness of AARs since different units across the Air Force have specific mission requirements. This specificity makes correctly identifying DAF Contracting stakeholders invaluable in understanding this project's scope.

Another challenge he identified was ensuring accessibility to AARs to those needing them through a centralized repository. Aside from centralized access, training stakeholders to use existing repositories—like the Joint Lessons Learned Info System (JLLIS) portal managed by the Defense Logistics Agency—is an important aspect to consider. While researching a viable contracting AAR repository falls outside the bounds of this paper, identifying a suitable database of reports enables stakeholders to conduct longitudinal analysis across various engagements while codifying institutionalized knowledge-sharing across the enterprise.



Messer's (2022) thoughts on the importance of analysis may reveal trends and lessons learned across multiple events; however, the lack of standardization may hinder the efficient gathering of information from various reports. Most notably, Messer (2022) argues that a disconnect often exists between documenting lessons learned and applying them; organizations waste the effort invested in creating AARs without application.

Finally, Messer's (2022) research revealed a unique theme not frequently referenced in other literature: the importance of human behavior. In his paper, Messer (2022) argues that AMC leadership needs to adopt and embrace a "lessons learned culture." By championing their importance, leadership buy-in transforms the AAR from an administrative burden to a valuable developmental tool. Leadership buy-in underpins the importance of creating value for AARs and, thus, fostering an environment of continuous learning and improvement.

## **8. Comparative Service Methodology Analysis**

A systematic examination of service approaches to capturing lessons learned reveals distinct methodologies reflecting each service's operational culture and mission requirements. The Department of the Army's structured approach in DA PAM 11-33 contrasts with the DAF's more flexible model in AFI 90-1601 (Army, 2022; Air Force, 2019). The Marine Corps Lessons Learned Program (MCLLP), detailed in MCO 3504.1, emphasizes a centralized, systematic collection and validation approach. At the same time, the Navy Lessons Learned Program (NLLP), outlined in OPNAVINST 3500.37D, prioritizes rapid sharing and multinational integration (Navy, 2006, 2023).

Each service leverages JLLIS as its system of record or repository, though implementation strategies differ significantly. The Army uses JLLIS as its primary system for lesson capture and distribution, while the Air Force enhances it with analytics for cross-domain sharing. The Marine Corps integrates JLLIS through the Marine Corps Center for Lessons Learned (MCCLL), ensuring data security and coordination. The Navy utilizes the Navy Lessons Learned Information System (NLLIS), a JLLIS subset that supports extensive data sharing with NATO and coalition partners. These implementations enable each service to manage and analyze operational insights across



classified and unclassified networks, reinforcing lessons learned as an essential tool for readiness and operational improvement.

Analysis of these approaches revealed critical considerations for developing an effective AAR template. Table 2 presents a comparative analysis matrix across military service components focusing on four critical dimensions: collection design, validation frameworks, implementation strategies, and technology integration. Understanding how each service approaches these dimensions provided valuable insights for developing a template that balances structure with flexibility while addressing DAF Contracting's unique requirements.





Table 2. Comparative Analysis Matrix Across Service Components

Category	Army Lessons Learned Program (DA PAM 11-33)	Air Force Lessons Learned Program (AFI 90-1601)	Marine Corps Lessons Learned Program (MCO 3504.1)	Navy Lessons Learned Program (OPNAVINST 3500.37D CH-1)	Potential Application to AAR Template
Collection Design	<b><u>Structured Framework</u></b> Standardized plans, detailed interview protocols, survey development, team composition, timelines	<b><u>Adaptive Methods</u></b> Multiple collection pathways, flexible timelines, rapid sharing, integrated exercises, operational impact focus	<b><u>Systematic Collection</u></b> Structured observation teams, centralized coordination, detailed data capture	<b><u>Flexible Collection</u></b> Fleet commands submit tactical to strategic lessons, includes NATO/coalition inputs	<b><u>Comprehensive Collection Model</u></b> Combines structured and adaptive approaches for broad data capture. Standardized plans and flexible pathways ensure thorough yet adaptable data gathering, supporting both systematic collection and rapid response needs
	<b><u>Rigorous Process</u></b> Designated validation authority, root cause analysis, multi-level review, criteria for validation, doctrinal integration	<b><u>Streamlined Validation</u></b> Tiered reviews, SME integration, focus on actionable findings, cross-functional coordination, rapid implementation	<b><u>Multi-Layered Validation</u></b> "HR/Personnel-based," linked to Title 10 responsibilities for capability alignment	<b><u>Tiered and Rapid Validation</u></b> Fleet/type commander review, SME integration, NATO coordination for actionable findings	<b><u>Balanced Validation Framework</u></b> Merges rigorous standards with a streamlined workflow. Multi-level SME reviews and cross-functional coordination ensure both accuracy and efficiency, aligning validated findings with operational and strategic objectives
Implementation Strategy	<b><u>Controlled Implementation</u></b> Formal tracking, progress updates, closure criteria, documented change verification, training integration	<b><u>Rapid Sharing Focus</u></b> Emphasis on timely sharing, accountability, progress tracking, integration with operations	<b><u>Formalized Tracking</u></b> MCCLL central coordination, training integration, doctrinal adaptation, multi-level verification	<b><u>Timely Dissemination</u></b> Commands submit reports for rapid integration into fleet planning, certification, multinational operations	<b><u>Integrated Implementation Approach</u></b> Utilizes formal tracking for accountability and progress while prioritizing rapid dissemination. A structured monitoring system supports timely updates, verification, and seamless integration into training and planning cycles
	<b><u>Implementation of JLLIS</u></b> Classification handling, cross-domain solutions, analytics, protocols for information sharing	<b><u>Enhanced JLLIS and Analytics</u></b> Flexible data handling, data analytics, improved cross-domain information sharing	<b><u>Centralized System</u></b> Utilizes JLLIS for secure data capture and DoD integration, supports classified/unclassified information	<b><u>NLLIS as System of Record</u></b> Subset of JLLIS for Navy, supports NATO/DoD data sharing, robust analytics for fleet readiness	<b><u>Enhanced Tech Integration</u></b> Leverages JLLIS or a separate, accessible repository for secure, multi-level data handling and cross-domain solutions. This ensures seamless, secure information sharing and analytics capabilities, supporting continuous improvement and readiness across operations





## C. INDUSTRY STANDARDS ANALYSIS

The analysis of AAR industry standards reveals established best practices that inform effective process development and implementation. A review of practices across federal agencies, international organizations, and educational institutions demonstrates several consistent approaches worth consideration for DAF Contracting's AAR optimization efforts.

- **Structured Framework:** Organizations consistently emphasize systematic approaches to AAR development and execution. FEMA implements standardized elements, including project scoping, data collection planning, and post-completion analysis (ERCMTA, 2007). Similarly, USAID (2006) maintains organized processes that guide participants through writing and review steps while preserving flexibility for different operational contexts.
- **Timeliness and Rapid Implementation:** Quick execution following events emerges as a critical industry best practice. FEMA mandates AAR completion within two weeks of an incident, while USAID prioritizes immediate feedback to maximize learning value (FEMA, 2023; USAID, 2006). This emphasis on rapid implementation ensures accurate detail capture while maintaining analytical rigor.
- **Stakeholder Inclusivity:** The FEMA model demonstrates comprehensive stakeholder engagement practices, incorporating input from frontline responders through senior leadership (FEMA, 2023). This approach mirrors successful military implementations, particularly the Army's inclusive AAR methodology (Department of the Army, 2022), fostering organizational buy-in through diverse participation.
- **Actionable Outcomes and Continuous Improvement:** Successful AAR programs emphasize converting findings into implementable actions. FEMA's framework includes specific guidance for action plan development, while USAID requires trackable recommendations throughout the AAR life cycle (FEMA, 2023; USAID, 2006). This focus on actionable outcomes helps ensure that AARs contribute meaningfully to organizational improvement.

## D. SUMMARY

Chapter II systematically explores the existing literature, theoretical frameworks, and best practices that inform the development of an optimized AAR process. The chapter begins by analyzing scholarly and military doctrine, establishing AARs' significant role in fostering organizational learning and operational improvement. Studies



highlight the challenges inherent in the current DAF AAR framework, such as inconsistent implementation, resource constraints, and gaps between insights and actionable outcomes.

The research approach incorporates strategic thinking principles rooted in systems dynamics and leverages Sterman's (2000) frameworks to understand complex interdependencies within the AAR ecosystem. Tools like system bounding and CLDs facilitate the analysis of feedback loops and causal relationships within contingency contracting. These approaches and insights establish a comprehensive foundation, validating the need for a structured methodology while providing actionable guidance for developing a robust and effective AAR framework aligned with DAF Contracting's unique operational demands.

The chapter also compares service-specific lessons learned programs, revealing methodological distinctions that inform template design. The U.S. Army's structured AAR model contrasts with the DAF's more flexible approach, offering insights into standardization and flexibility balance. Best practices from FEMA and USAID underscore four key components: structured frameworks, rapid implementation, stakeholder inclusivity, and action-oriented outcomes. These provide valuable guidance for enhancing DAF Contracting's AAR process.



### III. STAKEHOLDER ANALYSIS

This research selects stakeholders through a comprehensive analysis of the AAR ecosystem within DAF Contracting. Extensive interviews with over twenty domain experts across multiple organizations allow the research team to identify distinct stakeholder categories, each playing crucial roles within the interconnected systems of the OCS environment. The selection focuses on three critical criteria: (1) direct involvement in generating, processing, or utilizing AAR data; (2) roles in implementing or being affected by lessons learned; and (3) positions within the broader OCS framework.

Within the OCS framework, stakeholders engage through various interlinked systems, creating an intricate SoS structure. At the strategic level, senior contracting officials (SCOs) and AFICC leadership shape policy and establish priorities. At the operational level, functional area managers (FAMs) and mission planners integrate contracting capabilities into broader mission objectives. At the tactical level, CCOs and contracting squadrons execute mission-essential contracting support. These layers interact dynamically, with AARs as critical feedback mechanisms connecting tactical experiences to strategic decision-making.

An SoS strategic-thinking approach was applied to analyze the interconnectedness of the OCS operating environment and identify limitations within the current AAR framework. The stakeholder analysis highlighted the diverse roles and expanding participation within the AAR ecosystem, emphasizing how individual contributions, such as those from CCOs, can cascade throughout the system. By documenting operational experiences, stakeholders generate insights that inform training, planning, and resource decisions, reinforcing the ecosystem's capacity for organizational learning and continuous improvement.

Table 3 provides a foundational mapping of stakeholders—organized and classified across strategic, operational, and tactical levels—highlighting their primary roles and responsibilities within the AAR ecosystem. This structured framework illustrates the dynamic interactions between organizational layers, where AARs serve as



critical feedback mechanisms linking tactical experiences to strategic decision-making. This interconnected structure ensures that ground-level insights inform policy decisions while strategic guidance reaches operational implementers effectively.

Table 3. Initial Stakeholder Categories and Organizational Levels

Strategic Level	Operational Level	Tactical Level
Policy Makers	Functional Area Managers	CCOs
SCOs	Mission Planners	Contracting Squadrons
OCS Functional Experts	Future Operations Planners	Training Teams

#### A. INITIAL STAKEHOLDER IDENTIFICATION

The systems thinking perspective shows how stakeholders simultaneously influence and experience influence from multiple organizational components. For instance, a CCO generates an AAR document of their immediate operational experiences and contributes to broader organizational learning. Their documented insights inform training development, shape future planning decisions, and influence resource allocation across the enterprise. This multiplier effect demonstrates the far-reaching impact of individual stakeholder actions within the system.

#### B. STAKEHOLDER CATEGORIZATION

Steve Blank (2013), the creator of the Lean Launchpad methodology, describes beneficiaries as the direct recipients of a project’s outcomes—those who benefit most from developing a revised AAR framework and template. Beneficiaries bring real-world expertise, context, and challenges essential for driving research and refining solutions. As end-users, beneficiary feedback is critical to iterating and improving the Minimal Viable Product (MVP), which represents the simplest version of a product designed to test core hypotheses and gather actionable insights.

While Chapter IV will detail the Lean Launchpad method, it is essential to introduce key stakeholder terminology here to establish its relevance to this framework. Understanding stakeholder roles—such as beneficiaries, key partners, and saboteurs—



provides essential context for interacting within the AAR ecosystem and contributing to developing practical solutions (Blank, 2013).

A crucial aspect of this framework involves identifying beneficiaries’ “pains” and “gains.” Blank (2013) describes pains as the specific problems, challenges, and frustrations beneficiaries face. Solving these issues results in gains or positive outcomes, benefits, and improvements achieved through the development of an MVP; this is another way to measure success for the overall process. With a clear understanding of the beneficiaries’ pains and gains, the following section outlines how specific roles within the organization—especially CCOs—can leverage AAR data and advanced text analysis to address their unique challenges and enhance mission effectiveness.

## 1. Beneficiaries

Aligned with the Lean Launchpad methodology, beneficiaries in this research include vital groups who will directly benefit from the revised AAR framework and template. These end-users rely on actionable insights to inform decision-making, improve training, and drive mission success. Their feedback is integral to refining the MVP and ensuring its alignment with operational needs.

By addressing their unique “pains” and delivering measurable “gains,” the revised AAR framework offers a data-driven approach to transform insights into actionable outcomes. A revised template enables beneficiaries to overcome specific challenges and achieve meaningful improvements. The following section identifies the organizational roles most directly impacted by the revised framework, with CCOs recognized as the primary beneficiaries.

- **Contingency Contracting Officers:** As the primary users and authors of AARs, CCOs directly benefit from the revised AAR template. Leveraging detailed historical feedback allows them to identify and address recurring operational challenges, improving their response to emerging threats and optimizing mission readiness. By learning from past successes and challenges, CCOs can make informed decisions in real time and enhance their operating procedures based on a continuous feedback loop. This user-centric design positions CCOs as the primary beneficiaries of the improved AAR process and its data-driven insights.
- **Future Operations Planners:** Future operations planners benefit significantly from text analysis capabilities that synthesize AAR data into



actionable insights. As reviewers of aggregated AAR information, they can use these reports to improve decision-making, forecast trends, and develop strategies for future operations within their area of responsibility (AOR). Enhanced text analysis provides high-level summaries and trends, aiding their recommendations to key decision-makers and OCS functional representatives.

- **Exercise and Mission Planners:** Exercise and Mission Planners oversee large-scale exercises within the DAF, MAJCOM, and joint communities. While they are not direct users or writers of AARs, they rely on the structured and analyzed data from AARs to evaluate outcomes from complex events and create more effective training scenarios. Access to AAR insights through advanced text analysis supports their role in generating meaningful training outcomes and refining exercise planning based on comprehensive mission feedback.

## 2. Key Partners

Blank (2013) describes “key partners” as individuals, groups, or organizations from military, federal, academic, non-profit, and private entities. They contribute their resources, technological expertise, and funding to promote the research and development of MVP solutions. While they are not direct recipients or end-users of the MVP like beneficiaries, key partners may play a role in implementing solutions across the broader enterprise, navigating bureaucracy, and enacting policies to support the adoption of viable solutions (Blank, 2013). These key partners contribute to the broader success of the AAR framework by facilitating its adoption and integration at various levels across the organization. The following sections outline specific groups and how their support, expertise, and resources enhance the AAR system’s impact on mission readiness and operational effectiveness.

- **DAF Contracting Enterprise:** As the overarching entity governing contracting policies, guidance, and personnel, the DAF Contracting enterprise supports the MVP’s development by providing standards, best practices, and innovative approaches. Their input shapes the MVP’s alignment with existing contracting policies and facilitates the dissemination of lessons learned, ensuring that the MVP remains relevant and scalable across different contracting installations.
- **Senior Contracting Officials:** SCOs contribute to the MVP’s development by offering strategic input and advocating for AAR process improvements. Their support ensures that the MVP integrates effective feedback loops and promotes best practices, thus driving adoption across the enterprise. By reinforcing adherence to the AAR process and



championing recommendations from the field, SCOs enhance the MVP's credibility and utility among stakeholders.

- **Air Force Installation Contracting Center, Contingency Contracting Directorate:** The Contingency Contracting Directorate (KQ) supports MVP development by integrating training and operational feedback into the MVP's framework, ensuring it meets the requirements of an expeditionary contracting force. Their role in training and contingency planning provides critical insights for refining the MVP's focus on readiness, planning, lines of effort, and command and control capabilities, enhancing its applicability to contingency operations (Lasch, 2023).
- **Contracting Squadrons:** Whether home-station or expeditionary, Contracting squadrons (CONS) play a critical role in supporting the mission by establishing foundational skills for CCOs and providing mission-focused business support to the warfighter and other key partners. While not direct beneficiaries of the AAR system, CONS can utilize insights from a more effective AAR to refine in-house training programs, identify operational trends, and enhance customer education through relevant data analysis, strengthening the overall contracting function and readiness across the organization.
- **Logistics (A4):** The Logistics (A4) directorate, encompassing various functional specialties (e.g., Support Agreements, Civil Engineering, Force Protection, Supply, Fuels), offers logistical insights that are crucial to the MVP's operational support capabilities. By identifying and relaying functional gaps, the A4 directorate helps shape MVP requirements that address logistical challenges, ensuring the MVP is adaptable and responsive to various logistical needs within OCS frameworks.

### 3. Saboteurs

Implementing organizational change involves navigating resistance when introducing a new (or redesigned) concept or product. Within organizations are people and processes that resist change, those who may need to see how their efforts directly impact performance or lack the desire to shift the status quo (Ostroff, 2006).

When conducting interviews, the research team tried to identify potential saboteurs or those who might obstruct the proposed AAR template for various reasons. Knowing who the saboteurs are is crucial because it allows change managers to address the resistance more effectively (e.g., spending more time developing a product roll-out plan or implementing a phased introduction). While the concepts of “gain creators” and “pain relievers” for value proposition effectiveness are more aligned with the





beneficiaries, understanding the concerns and motivations of saboteurs is just as valuable to help foster success by integrating diverse perspectives (Blank, 2021).

- **Senior Leaders Resistant to Change:** The proposed AAR template aims to serve as an enterprise-wide solution. Implementing and using it successfully relies on “champions” or advocates at the highest levels who recognize its value in providing actionable feedback and enhancing force development through training. However, senior leaders often remain comfortable with the status quo or existing practices. They may view the new template and technology as overly complex, unnecessary, or disruptive to a high operation tempo.
- **Security Managers and IT Support Staff:** AI tools may pose security concerns, considering the potential aggregation of information captured in AARs, which may warrant a higher classification. A learning curve is associated with training the force on the proper, ethical use of GPTs to protect sensitive information and uphold the integrity of the documentation process. The team must also consider how to provide user access and storage in a centralized repository for a broad tier of beneficiaries and key partners.
- **Contracting Commanders and Senior Enlisted Leaders:** Command teams of commanders and senior enlisted leaders (SELs) may prioritize operational tempo over administrative tasks. They may view the completion of an AAR as overly burdensome or ineffective in creating value for the bigger picture.
- **Unit Deployment Managers:** Unit Deployment Managers (UDMs) are the readiness conduits between the MAJCOM FAMs, commanders, and unit personnel. However, the position of a UDM is also an additional duty. Ensuring their CCOs have access to AARs, reviewing their contents for insights, and connecting them with other resources may disrupt established battle rhythms or be overly burdensome.
- **Unit Training Managers:** Unit Training Managers (UTMs) may become potential saboteurs if they perceive that new initiatives will introduce more training requirements. They may feel overlooked or undervalued if approached with implementing a new training requirement for using AARs and AAR generation. New training programs may require skills or knowledge a UTM does not possess (e.g., first-hand knowledge of the deployed environment), which may hinder substantive experience to support the successful implementation of a new system anecdotally.
- **Personnel Unfamiliar with Technology:** Personnel unfamiliar with advanced technologies may resist adopting the new AAR template if it relies on overly complex platforms. This resistance can hinder implementation, create inconsistencies, and reduce the framework’s effectiveness. To address this, the MVP must prioritize user-friendly design, clear guidance, and accessible training to ensure adoption across all skill levels. Engaging these users during testing can also identify pain





points and enhance usability, minimizing resistance and fostering successful implementation.

### **C. PRELIMINARY NEEDS ASSESSMENT**

Initial research identified several critical areas of stakeholder needs that would later inform solution development. Information requirements varied significantly across organizational levels, with tactical users needing immediate access to relevant historical AAR data, while strategic planners required broader trend analysis capabilities. Process requirements revealed the need for standardized documentation procedures that could accommodate different operational contexts while maintaining consistency in data capture.

Resource constraints emerged as a universal concern across all stakeholder groups. Time allocation for AAR completion often competes with immediate operational demands, particularly at the tactical level. Personnel support and technical infrastructure requirements varied by organization size and mission type, while training resources were needed to address technical skills and cultural aspects of AAR implementation.

### **D. TRANSITION TO ENHANCED STAKEHOLDER ANALYSIS**

This initial stakeholder analysis laid the groundwork for understanding the AAR ecosystem but marked only the first step in a more in-depth process. Preliminary categorizations highlighted the need for a systematic approach to user needs and behaviors, prompting the adoption of the Lean Launchpad methodology detailed in Chapter IV. This methodology transformed initial insights into detailed user archetypes and value propositions.

The shift from broad stakeholder categories to precise user definitions was pivotal. Chapter IV explains how the Lean Launchpad's customer discovery process validated early assumptions while uncovering new stakeholder needs and interaction patterns (Hixson et al., 2018). This progression from general insights to specific user requirements was critical for developing solutions that effectively address operational demands.



## **E. SUMMARY**

This chapter examines the critical role of stakeholders in the AAR ecosystem within DAF Contracting, highlighting their influence across strategic, operational, and tactical levels. A systems thinking approach was employed to identify and classify stakeholders, providing an organized framework for understanding their roles, responsibilities, and interactions. Table 3 provides a foundational mapping that illustrates the mutual influence between these stakeholders and the AAR process.

Beneficiaries, key partners, and saboteurs emerged as primary stakeholder categories. Beneficiaries, such as CCOs and mission planners, represent the end-users who benefit from actionable insights generated by a revised AAR framework. Key partners, including senior leaders and directorates like AFICC/KQ, contribute critical resources and expertise to facilitate adopting and integrating AAR solutions. Conversely, saboteurs were identified as potential obstacles, highlighting the importance of addressing resistance and fostering buy-in for successful implementation.

The initial analysis underscored the interconnected nature of the AAR ecosystem, where individual actions cascade across the system, influencing organizational learning and operational outcomes. This foundational understanding lays the groundwork for deeper analysis in Chapter IV, where the Lean Launchpad methodology converts these insights into actionable archetypes and value propositions, aligning solutions with stakeholder needs and behaviors.



## **IV. PHASE II – LEAN LAUNCHPAD METHODOLOGY**

This chapter details the application of Phase II, where the Lean Launchpad methodology, adapted through the H4D framework, was used to validate and refine solutions for optimizing the AAR process. Blank (2013) describes Lean Launchpad as an iterative approach emphasizing direct engagement with beneficiaries to ensure solutions are aligned with real-world needs and can adapt to changing requirements. The H4D framework, tailored for defense environments, prioritizes rapid solution refinement based on operational feedback, making it well-suited for dynamic settings like DAF Contracting.

The research team followed the H4D methodology's structured progression to develop, test, and validate a clear problem statement for the AAR process. Building on the foundational stakeholders identified in Chapter III (beneficiaries, key partners, and saboteurs), this phase began with problem statement development, followed by hypothesis testing to validate assumptions, and culminated in synthesizing insights through a systemic optimization framework to guide solution development.

### **A. PROBLEM STATEMENT DEVELOPMENT**

The insights gathered through frequent touchpoints and beneficiary interactions formed the backbone of the problem statement refinement process. These iterative engagements allowed the research team to validate and adjust their understanding of the AAR challenges, ensuring that the problem statement and associated hypotheses remained closely aligned with the beneficiaries' evolving needs; this process established a solid foundation for solution development.

The development of the problem statement unfolded across two primary phases: an initial exploratory phase and a refined focus guided by sponsor engagement. Early findings from beneficiary discovery and stakeholder feedback surfaced critical issues within the AAR process, affecting its effectiveness and alignment with strategic objectives. These issues, categorized into operational, technical, and cultural domains, structured the problem space and highlighted critical areas for improvement.



Table 4, Initial Exploratory Findings, summarizes the primary challenges identified within the AAR ecosystem during the domain discovery phase. Operational challenges include constraints in resource allocation and mission tempo, which hinder consistent documentation practices. Technical challenges encompass data management and integration limitations, impeding the organization's ability to analyze AARs effectively. Cultural challenges, such as resistance to change and inconsistent adherence to AAR requirements, further complicate the optimization of the AAR process. Together, these categories highlight key areas for intervention and lay the groundwork for refining the problem statement. Insights gathered during this exploratory phase were synthesized into Problem Statement Version 1, providing a focused starting point to address these challenges systematically.



Table 4. Initial Exploratory Findings

Category	Description	Specific Challenges
Operational	Challenges arising from the nature and demands of military operations that impact the AAR process	<ul style="list-style-type: none"> <li>• <b>Resource Constraints:</b> Limited personnel for AAR completion and review</li> <li>• <b>Mission Tempo:</b> High pace affecting documentation quality</li> <li>• <b>Geographic Dispersion:</b> Coordination challenges across locations</li> <li>• <b>Information Access:</b> Difficulties accessing historical AAR data</li> <li>• <b>Quality Control:</b> Inconsistent AAR standards</li> </ul>
Technical	Issues related to the tools, systems, and technical limitations of the AAR process	<ul style="list-style-type: none"> <li>• <b>System Limitations:</b> Inadequate templates/tools for AAR creation/storage</li> <li>• <b>Data Management:</b> Challenges in organizing and retrieving AARs</li> <li>• <b>Integration Issues:</b> Limited connectivity between systems</li> <li>• <b>Security Constraints:</b> Handling classified information</li> <li>• <b>Analytics Capabilities:</b> Limited trend analysis across AARs</li> </ul>
Cultural	Challenges rooted in attitudes, perceptions, and organizational culture impacting AAR engagement and effectiveness	<ul style="list-style-type: none"> <li>• <b>Perception Issues:</b> AARs seen as an administrative burden</li> <li>• <b>Resistance to Change:</b> Attachment to existing methods</li> <li>• <b>Documentation Priority:</b> Competing priorities impacting completion</li> <li>• <b>Knowledge Sharing:</b> Reluctance to share sensitive information</li> <li>• <b>Implementation Consistency:</b> Variable adherence to AAR requirements</li> <li>• <b>Training:</b> Inconsistent AAR training and skill application, affecting process understanding and utilization</li> </ul>

Table 5 provides a comparative overview of the two versions of the problem statement, highlighting key attributes and notable improvements at each stage. The initial version identified general opportunities for enhancing the AAR process across the DAF Contracting environment, emphasizing broad concepts like organizational learning and process consistency. However, this version lacked a direct connection to specific operational frameworks, which limited its applicability to immediate mission needs.

The problem statement was re-evaluated, refined, and validated through sponsor engagement to address key challenges identified during the discovery phase. The updated version focuses on standardization issues and aligns directly with the AFFORGEN

framework, strengthening the connection between AAR practices and mission performance. As noted in the “Notable Improvements” section of Table 5, the validated Version 2 transitions from a broad perspective to a more precise focus on operational challenges, emphasizing systematic improvement, alignment with strategic objectives, and enhanced readiness for future missions.

Table 5. Problem Statement Evolution

Aspect	Version 1 (Initial)	Version 2 (Validated)
<b>Problem Statement</b>	<p><u>Through Problem Discovery</u></p> <p>"After-action reports have the potential to significantly enhance organizational learning and provide insightful feedback to the Air Force Contracting community. However, there may be an opportunity to optimize the current processes in creating, analyzing, and applying these reports. Doing so could lead to more informed decision-making, better allocation of resources, and the uncovering of valuable opportunities for process improvements. Also, it may be advantageous to explore the development of a more consistent and effective system for handling AARs to boost performance, promote ongoing learning, and support strategic objectives."</p>	<p><u>With Sponsor Engagement</u></p> <p>"The current After Action Report (AAR) process within Air Force Contracting lacks standardization and a mandatory framework for deployments and contingencies. Inconsistent practices and underutilizing operational insights undermine our ability to prepare follow-on forces and systematically capture, analyze, and apply lessons learned from past operations to enhance future mission performance (e.g., AFFORGEN)."</p>
<b>Key Attributes</b>	<ul style="list-style-type: none"> <li>• Identified a general opportunity for improvement</li> <li>• Acknowledged potential benefits</li> <li>• Broad scope</li> <li>• Lacked specific operational context</li> <li>• Limited connection to strategic objectives</li> </ul>	<ul style="list-style-type: none"> <li>• More precise focus on specific challenges</li> <li>• Clearer connection to operational impact</li> <li>• Direct alignment with AFFORGEN framework</li> <li>• Emphasis on systematic improvement</li> <li>• Stronger link to mission performance</li> </ul>
<b>Notable Improvements</b>	<ul style="list-style-type: none"> <li>• Recognized improvement potential in the AAR process</li> <li>• Proposed a need for consistency</li> </ul>	<ul style="list-style-type: none"> <li>• Shifted to a specific focus on challenges with standardization and framework</li> <li>• Aligned with strategic framework (AFFORGEN)</li> <li>• Linked directly to mission performance and future preparation</li> </ul>

## B. SENSE-MAKING THROUGH SYSTEMS THINKING

While the systemic nature diagram (Figure 3) is not part of the Lean Launchpad methodology, it was a valuable tool to support the development of other Lean Launchpad elements. This visualization maps the interactions and dependencies within the AAR framework, offering a holistic view of the ecosystem. By leveraging this diagram, the research team was able to identify systemic gaps, prioritize leverage points, and generate



targeted hypotheses to ensure that the proposed solutions addressed the most critical operational challenges.

In the context of the AAR framework, leverage points refer to areas within the system where focused interventions can lead to significant improvements. For example, addressing inefficiencies in Operational Feedback mechanisms could streamline real-time adjustments and enhance decision-making while improving Data Analytics capabilities could provide actionable insights for future planning. These leverage points were identified by examining dependencies and interactions within the ecosystem, ensuring that the proposed solutions targeted the most impactful areas.

Building on the structured problem statement development, the research team applied systems thinking principles to synthesize insights gathered during the foundational research phase. This approach enabled a deeper understanding of how various elements within the AAR ecosystem interact, forming a basis for targeted hypothesis development. Figure 3 illustrates the systemic interactions within the AAR ecosystem, providing a baseline foundation for identifying leverage points where targeted interventions could enhance system performance.

Figure 3 highlights five key areas within the AAR ecosystem: Operational Feedback, Data Analytics & Artificial Intelligence, Training & Development, Stakeholder Integration, and Strategic Alignment. Each area represents a critical dimension of the ecosystem, encompassing specific tasks and components that contribute to the overall effectiveness of the AAR process. For example, Operational Feedback emphasizes tools like mission debriefs and real-time adjustments, while Stakeholder Integration fosters shared objectives and policy alignment through centralized repositories. These areas collectively provide a comprehensive view of the AAR ecosystem's interdependencies and areas of opportunity.



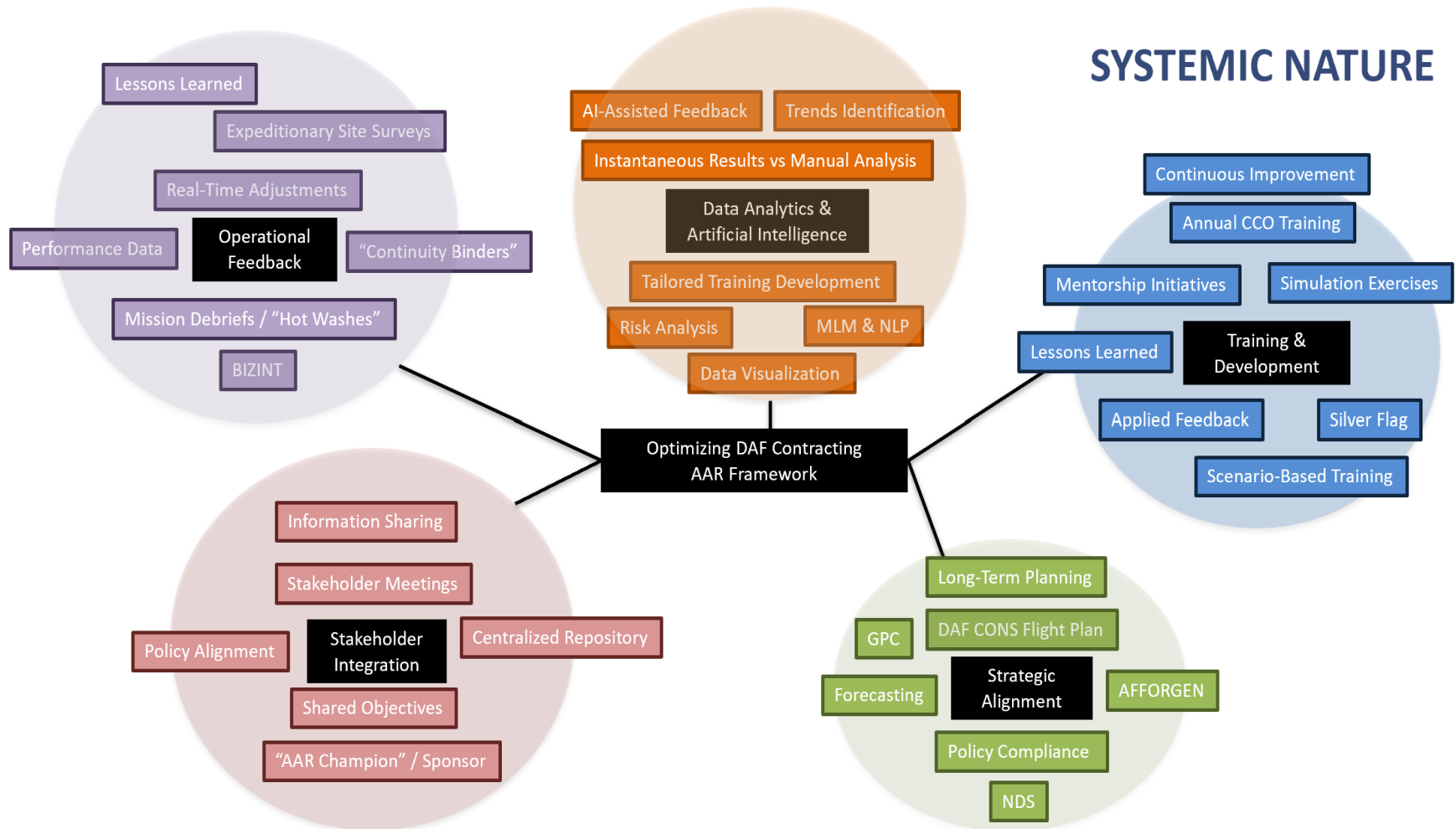


Figure 3. Systemic Nature for Optimizing DAF Contracting AAR Framework



Building on these insights, Table 6 systematically summarizes how these components interact within the broader AAR ecosystem. This color-coded mapping proved invaluable to the researchers and the problem sponsor, as it reveals specific intervention points where process improvements could generate maximum impact. By understanding these relationships, the research team could develop targeted solutions that address immediate operational needs and long-term strategic objectives while working within existing organizational constraints. The table’s analysis particularly supports the sponsor’s focus on enhancing operational insights by identifying where and how AAR data can most effectively influence decision-making and mission performance.

Table 6. DAF Contracting AAR Framework Components

Hubs	Description
<b>Operational Feedback</b>	<ul style="list-style-type: none"> <li>• Focuses on the collection and integration of feedback from various sources</li> <li>• Serves as the foundation of the AAR process, providing insights that help identify what worked well, what needs improvement and how to prepare for future missions</li> <li>• Data is grounded in real-world experiences and high-value insights</li> </ul>
<b>Data Analytics &amp; AI</b>	<ul style="list-style-type: none"> <li>• Modernizing the AAR framework leverages technology to enhance data analysis, reporting trends and predictive capabilities</li> <li>• Represents integration, training of stakeholders and updates to policies directly or tangentially related to the AAR ecosystem</li> </ul>
<b>Training &amp; Development</b>	<ul style="list-style-type: none"> <li>• Optimization requires continuous improvement based on AAR insights</li> <li>• Organizations can better prepare beneficiaries to handle diverse scenarios, improving their ability to respond effectively with the latest tools, knowledge and techniques</li> </ul>
<b>Stakeholder Integration</b>	<ul style="list-style-type: none"> <li>• Success requires collaboration across stakeholders—internal teams, joint services and industry partners</li> <li>• Requires strong integration and cooperation, fostering a cohesive and unified approach to contracting operations via cross-flow of information and alignment of strategic goals</li> </ul>
<b>Strategic Alignment</b>	The AAR framework aims to support long-term mission readiness and strategic alignment by ensuring lessons learned from operations directly contribute to broader objectives such as force readiness and operational efficiencies

### C. BENEFICIARY DISCOVERY

With the AAR system’s complexities mapped and leverage points identified through systems thinking, the research team shifted focus to directly engaging with beneficiaries. Beneficiary discovery established the essential link between theoretical



insights and real-world operational needs, tailoring solutions to stakeholders' unique roles and challenges (Blank, 2013).

This process was rooted in structured interviews with beneficiaries across various operational roles, including CCOs, planners, and senior leaders. These interviews were the primary mechanism for gathering actionable insights into stakeholders' specific challenges, pain points, and desired outcomes. Each interview was designed to explore the beneficiaries' experiences with the current AAR framework, capturing perspectives on its utility, areas for improvement, and potential solutions. In total, 33 in-depth interviews were conducted, providing a comprehensive understanding of the diverse perspectives within the contracting community. By focusing on interviews, the research team ensured that beneficiary discovery was grounded in meaningful, detailed feedback. This approach provided practical insights that shaped the iterative refinement of hypotheses and solution development, ensuring the proposed solutions were relevant and actionable within DAF Contracting operations.

Through continuous beneficiary engagement, the team validated assumptions, refined solution features, and ensured alignment with the AAR framework's overarching goals. This direct engagement strengthened the hypotheses and reinforced the connection between theoretical concepts and practical implementation, fostering an impactful and operationally viable solution.

## **1. Archetype Discovery**

Understanding key beneficiaries' specific roles, responsibilities, and challenges within the AAR ecosystem was crucial to developing a solution that meets operational needs. This research identified three archetypes: CCOs, Future Operations Planners, and Exercise and Mission Planners. Each archetype represents a group with shared responsibilities, pain points, and gain opportunities. Identifying these archetypes ensured that the proposed solutions addressed diverse operational needs while remaining practical and relevant.

The research team utilized the Value Proposition Canvas (VPC) to uncover each archetype's unique pain points and potential gain opportunities. Table 7 illustrates how



this framework facilitated the systematic identification of archetype-specific challenges and opportunities. The pains and gains captured in the table provided actionable insights for aligning solution features with real-world needs. While this section introduces the VPC's application, the framework will be described in greater detail in subsequent sections.

By synthesizing these archetypes' needs and challenges, the team gained a deeper understanding of the operational ecosystem in DAF Contracting. This archetype discovery process informed hypothesis generation, validating the problem statement, and ensured that each proposed solution meaningfully addressed stakeholder needs. Engaging directly with beneficiaries through the Lean Launchpad framework allowed the team to validate assumptions and refine hypotheses, fostering solutions grounded in operationally relevant insights (Blank, 2013).

Table 7. Archetype Discovery Overview

Archetype	Responsibilities	Job Description	Pain Points	Gain Opportunities
<b>CCO</b>	Responsible for creating and using AARs in operational settings	<ul style="list-style-type: none"> <li>Documents mission experiences</li> <li>Captures lessons learned</li> <li>Provides feedback for future deployments</li> </ul>	<ul style="list-style-type: none"> <li>Limited time for documentation</li> <li>Unclear format requirements</li> <li>Difficulty accessing past AARs</li> </ul>	<ul style="list-style-type: none"> <li>Streamlined documentation</li> <li>Better pre-deployment preparation</li> <li>Improved knowledge-transfer</li> </ul>
<b>Future Operations Planner</b>	Engaging in planning, resource allocation, and cross-functional collaboration to support deployment strategies	<ul style="list-style-type: none"> <li>Identify key insights and trends</li> <li>Informs planning decisions</li> <li>Coordinates resource allocation</li> </ul>	<ul style="list-style-type: none"> <li>Fragmented and/or outdated data</li> <li>Difficulty identifying patterns</li> <li>Lack of accessible strategic insights</li> </ul>	<ul style="list-style-type: none"> <li>Improved data integration</li> <li>Analytics may enable enhanced planning</li> </ul>
<b>Exercise and Mission Planner</b>	Strategic planners who use AAR data to inform future operations and deployment strategies	<ul style="list-style-type: none"> <li>Plans deployments</li> <li>Allocates resources</li> <li>Coordinates cross-functional support</li> </ul>	<ul style="list-style-type: none"> <li>Fragmented AAR data</li> <li>Difficulty identifying trends</li> <li>Limited strategic insights</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced data analysis</li> <li>Better resource planning</li> <li>Improved strategic alignment</li> </ul>

## D. HYPOTHESIS TESTING AND VALIDATION

The insights gathered during beneficiary discovery and archetype analysis informed the development of crucial hypotheses about the AAR process. These hypotheses framed the testing process, allowing the research team to iteratively validate assumptions and align solutions with real-world beneficiary needs (Blank, 2013). This process involved systematically investigating the problem space and developing multiple



hypotheses to deepen understanding of the AAR ecosystem. Guided by Blank's (2013) methodology, these hypotheses framed assumptions on how to systematically capture, analyze, and apply operational insights to enhance mission performance.

The team initially formulated fifteen hypotheses to explore various aspects of the AAR process. However, the focus here is on the three hypotheses most related to the central research objective: optimizing the AAR process to systematically capture, analyze, and apply insights for mission improvement in an evolving threat environment. These critical hypotheses targeted specific elements of the AAR process, aligning with the VPC framework to ensure solution development remained closely aligned with stakeholder needs and operational goals (Blank, 2013).

### **1. Hypothesis 1 (Validated): Standardized Yet Flexible AAR Framework**

The first hypothesis posited that implementing a standardized yet flexible AAR framework would enable the systematic capture of operational insights across diverse mission sets. Validation of this hypothesis emerged from feedback highlighting how structured approaches to AARs transformed scattered mission feedback into actionable intelligence for follow-on forces. This insight emphasized the critical role of adaptable frameworks, particularly in dynamic operational environments such as INDOPACOM's contested logistics scenarios (Pacific Air Forces, 2023). These findings, categorized as interview insights, are summarized in Table 8, highlighting key patterns and pain points, reinforcing the need for a structured yet flexible AAR framework tailored to various mission contexts.



Table 8. Hypothesis 1: Interview Insights Summary

Archetype	Insight Summary	Key Challenges and Needs
CCO	CCOs expressed the need for a streamlined AAR format that reduces documentation time while retaining critical details	Limited time, unclear format, difficulty accessing AAR history
Future Operations Planner	Highlighted the need for a strategic overview within AARs to assist in long-term planning	Fragmented data, difficulty identifying trends
Exercise and Mission Planner	Identified value in cross-functional AAR data sharing to enhance operational coherence	Limited strategic insights, data access issues

## 2. Hypothesis 2 (Partially Validated): Integration of Advanced Data Analytics

The second hypothesis suggested that advanced data analytics could enhance the AAR process by improving the analysis of operational insights and informing strategic planning and adjustments. Feedback from operational planners revealed instances where pattern recognition across multiple AARs highlighted critical supply chain vulnerabilities, subsequently shaping theater-wide planning efforts. These findings demonstrate the value of integrating data analytics to identify recurring themes and extract actionable intelligence from AAR data while noting some implementation challenges, such as resource constraints and data standardization.

Although partially achieving validation, further testing with new analytical tools and across complete AFFORGEN cycles is necessary to ensure the robustness and scalability of this approach. The cumulative feedback collected across various touchpoints offered insights into technical limitations and future opportunities for enhancing data-driven decision-making in the AAR ecosystem.

## 3. Hypothesis 3 (Validated): Formal Feedback Loop for Training Development

The third hypothesis posited that establishing a formal feedback loop between AAR findings and training development would significantly improve future mission performance. Analysis of feedback from contracting and operational stakeholders highlighted cases where systematically applying lessons learned from previous deployments reduced preparation times for similar missions by as much as 40%. These

observations support the hypothesis that linking captured insights with training programs prepares teams more effectively and enhances operational readiness by proactively addressing challenges.

#### **E. MISSION MODEL CANVAS**

The hypothesis testing process was structured and guided by the Mission Model Canvas (MMC), which provided a comprehensive framework for organizing hypotheses related to the AAR process. Continuously refining the MMC ensured alignment between validated hypotheses and proposed solutions, capturing critical mission elements such as key partners, key activities, resources, and the beneficiary archetypes discussed earlier (Blank, 2013). Unlike traditional business-focused canvases, the MMC focuses on mission-driven projects, prioritizing alignment with organizational objectives and addressing real-world operational challenges (Blank, 2013).

Through the MMC, the research team explored three primary areas essential to the AAR process: Desirability, Feasibility, and Viability (Blank, 2013). These dimensions framed hypotheses and directed solution development toward improvements most likely to succeed within mission parameters. The MMC's structured approach helped validate the problem's relevance while keeping proposed solutions practical and aligned with the DAF Contracting community's operational goals. Appendix A provides an example of the MMC utilized during the early stages of the research to gather insights and refine hypotheses throughout the iterations and pivots encountered during the beneficiary discovery and MVP testing phases of the Lean Launchpad methodology.

#### **F. VALUE PROPOSITION CANVAS**

The VPC was essential for refining solution features to address specific beneficiary needs, pain points, and potential gains (Blank, 2013). While the MMC provided a high-level framework for organizing hypotheses, the VPC allowed the team to focus on the operational realities of beneficiaries, such as CCOs, future operations planners, and mission planners. By systematically mapping beneficiary challenges and expectations, the VPC facilitated a deeper understanding of the value of each archetype sought from the AAR process.



For example, CCOs faced significant challenges in efficiently documenting and accessing past AARs, often due to inconsistent processes and data quality. These pain points aligned with potential gains, including streamlined documentation, improved knowledge transfer, and centralized access to actionable insights. By identifying these needs, the team was able to design targeted value propositions that directly addressed these challenges and informed the hypothesis testing and MVP development processes.

In addition, the VPC enabled the team to identify and refine specific solution features that aligned with beneficiary expectations. Hypothesis 2 proposed that advanced data analytics could uncover actionable insights and patterns, addressing strategic alignment needs and enhancing decision-making processes. The VPC further refined this hypothesis, ensuring that each feature of the proposed solution connected to a documented need, increasing its likelihood of acceptance and adoption within the DAF Contracting community.

The iterative use of the VPC played a pivotal role in validating assumptions about the AAR process' effectiveness. By continuously testing and adjusting the solution based on beneficiary feedback, the team ensured the final product met the confirmed needs of the AAR ecosystem. This approach was instrumental in shaping the problem statement, guiding solution development, and contributing to creating the MVP, which integrates essential features and insights to drive meaningful, operationally relevant improvements. An example of a Mission Planner VPC is provided in Appendix B.

## **G. MINIMUM VIABLE PRODUCT OVERVIEW**

With validated hypotheses and refined value propositions, the research team developed several MVPs to test the most critical solution features (Blank, 2013). MVPs serve as the initial, streamlined version of the proposed solution, focusing on core features needed to test hypotheses and gather feedback from beneficiaries. They focus on incorporating essential features that enable immediate testing and validation while minimizing resource investment (Blank, 2013). Chapter V provides a detailed analysis of each MVP.





## **H. SUMMARY**

Chapter IV focused on applying the Lean Launchpad methodology to validate and refine solutions for optimizing the AAR process within DAF Contracting. The chapter began with the development of the MMC, which framed the overarching problem and organized initial hypotheses around stakeholder needs and mission alignment.

Using the VPC, the team analyzed fundamental beneficiary archetypes, identifying their specific pain points and desired gains. Feedback from these archetypes was instrumental in refining hypotheses, ensuring that proposed solutions effectively addressed operational challenges.

The research also applied systems thinking to map and analyze the complex dynamics within the AAR ecosystem, highlighting leverage points and interdependencies critical for improving its functionality. This approach provided a holistic understanding of how stakeholders interact with the AAR framework and where targeted interventions could yield the most impact. Chapter IV sets the stage for practically applying these findings in the following research phase by validating hypotheses and aligning insights with stakeholder needs. This chapter lays the groundwork for MVP development, while Chapter V thoroughly explores and implements the MVP.





## **V. MINIMAL VIABLE PRODUCTS**

This chapter presents the primary deliverables developed through the research process, focusing on two sponsor-requested MVPs: an optimized AAR template and a proof-of-concept for advanced text analysis capabilities. These core deliverables directly address the central research question by providing practical tools for capturing and analyzing operational insights. The AAR template represents a standardized yet flexible framework for documenting mission experiences. At the same time, the text analysis proof-of-concept demonstrates how modern analytical tools can transform raw AAR data into actionable intelligence for planning and decision-making.

Beyond these primary deliverables, the research revealed opportunities to conceptualize how these tools could function within the broader AAR ecosystem and align with the AFFORGEN framework. The research team used process analytics and stakeholder feedback to develop visualization tools and frameworks demonstrating how the AAR process could be institutionalized across the contracting enterprise. This expanded view culminated in two additional conceptual MVPs: the “AAR Ecosystem” design and an AFFORGEN integration framework that uses a sports analogy to demonstrate how AARs support force generation and readiness.

### **A. AFTER-ACTION REVIEW TEMPLATE**

Developing the AAR template was critical in optimizing operational insights captured, analyzed, and applied within the DAF Contracting enterprise. The initial AAR template addressed immediate gaps in capturing key operational details and stakeholder feedback. This version prioritized simplicity, with fillable sections guiding users to document actionable insights. However, user feedback highlighted opportunities for refinement, including the need for standardized terminology, enhanced guidance for completing sections, and flexibility to adapt the template to varying mission types and operational contexts.

The final AAR template emerged through a comprehensive research approach, leveraging multiple methodologies to ensure it was operationally relevant and strategically aligned. Systems thinking provided the foundational lens for understanding



the complexities of the AAR ecosystem, revealing key stakeholder interdependencies and operational challenges. Stakeholder interviews and the Lean Launchpad beneficiary discovery process were instrumental in capturing beneficiary needs, identifying pain points, and validating the importance of addressing gaps in the AAR process. Comparative analysis of existing AAR frameworks, industry practices, and lessons learned documents further informed the template's structure, ensuring alignment with best practices.

Sponsor feedback and direct engagement with beneficiaries were pivotal in refining the final product. The research team iterated through six versions of the AAR template, each incorporating insights gained from qualitative beneficiary inputs and sponsor engagement. These iterative improvements ensured that the template addressed practical needs and aligned with operational scenarios. This rigorous iterative process ensured that the final template addressed beneficiary needs comprehensively and aligned with operational requirements. Table 9 provides an overview of the progression from the initial drafts to the final version, highlighting key enhancements in usability, guidance, and alignment with operational needs. The finalized template features structured prompts, clear instructions, and examples, enabling users to document operational challenges, successes, and lessons learned effectively. Additional prompts for risks, mitigation efforts, and leadership feedback ensure the capture of actionable insights to drive continuous improvement.

By integrating insights from these diverse research methods, the final AAR template represents a collaborative, evidence-based tool tailored to the operational realities of DAF Contracting. This approach addresses current gaps and positions the enterprise to institutionalize a more efficient and impactful AAR process. A sample of the final template is included in Appendix C for reference.



Table 9. Evolution of the AAR Template: From Initial Concept to Finalized Framework

Aspect	Initial AAR Template	Final AAR Template
Purpose	Basic proof-of-concept for capturing key operational insights	Comprehensive tool for standardized and adaptable data collection
Structure	Simple fillable fields with minimal guidance	Enhanced structure with detailed prompts and instructions
Guidance	Limited instructions for completing sections	Clear instructions and examples for clarity and consistency
Flexibility	Focused on general use	Adaptable to various mission types and operational contexts
Feedback Integration	Minimal fields for user feedback	Specific fields for detailed feedback to leadership
Alignment with Strategy	General operational alignment	Direct integration with DAF priorities and strategic initiatives
Data Collection Scope	Limited focus on operational challenges and successes	Broader scope including risks, mitigation, and actionable recommendations
Usability	Functional but lacked user-friendly design	Streamlined for ease of use with standardized terminology
Alignment with Research	Addressed basic stakeholder needs identified in initial feedback	Fully aligned with key research findings, including stakeholder “pains” and “gains,” leadership advocacy, and centralized data management

## B. PROOF-OF-CONCEPT: AAR TEXT ANALYSIS

The research team conducted a comprehensive proof-of-concept focused on AI-based text analysis to validate the feasibility of integrating AI into the AAR process. This effort centered on aligning AAR outputs with stakeholder requirements and operational priorities. Central to this initiative was developing tools and frameworks to evaluate the AAR template’s effectiveness and potential for addressing beneficiary needs. These tools provided the foundation for assessing and refining the AI-generated outputs, ensuring alignment with mission-critical objectives and usability standards.

### 1. Attribute Map

The attribute map, presented in Table 10, is a structured tool designed to evaluate the AAR template’s features based on their importance to stakeholders and their impact on usability. Drawing on concepts from MacMillan and McGrath (1996), the attribute map categorizes features into basic, discriminator, and energizer levels while assessing

them as positive, negative, or neutral. This process ensures that the AAR template aligns with beneficiary needs while addressing operational challenges.

Table 10. AAR Standardized Template Attribute Map

AAR Standardized Template			
	Basic	Discriminators	Energizers
Positive	<b>Nonnegotiables:</b> A standardized template that has been trained on and is utilized by all parties	<b>Differentiators:</b> Tailored to contracting, avoiding unnecessary details or irrelevant information	<b>Exciters:</b> Provides recent, relevant information to minimize idle time upon arrival in the AOR. Enables data-driven decisions to support operational plans, unit structure, capability gap analysis, and risk reduction
Negative	<b>Tolerables:</b> Questions must be easy to answer yet detailed enough to capture important information	<b>Dissatisfiers:</b> The template must eliminate extraneous information, such as overly complex AFI-driven examples or local templates inconsistent with current Lessons Learned guidance	<b>Enragers, Terrifiers, Disgusters:</b> Requires a quality review mechanism to ensure accuracy and relevancy before submission. The output should facilitate better decision-making and actionable insights
Neutral	<b>So-Whats:</b> The template format (e.g., PDF, Microsoft Word, or Forms) does not impact its effectiveness	<b>Parallel Differentiators:</b> Must be user-friendly and straightforward, ensuring all parties can effectively complete the AAR with valuable feedback	N/A

MacMillan and McGrath (1996) emphasize that an attribute map enables organizations to focus on the attributes that stakeholders value most, eliminate unnecessary complexity, and refine features that foster engagement. For the AAR template, this ensures a balance between usability, actionability, and scalability, making it a critical step in developing practical tools for operational contracting. Table 10 adapts the University of Pennsylvania’s Attribute Map framework, which organizes attributes into three hierarchical levels: Basic, Discriminator, and Energizer (MacMillan & McGrath, 1996). Each level captures a different degree of importance and impact (University of Pennsylvania, 2012):

- **Basic Attributes** are foundational elements required for a product or process to function effectively. Without these attributes, the system cannot achieve its primary purpose



- **Discriminator Attributes** set a product or process apart from others by addressing specific needs or challenges; these attributes differentiate the solution and contribute to its unique value proposition
- **Energizer Attributes** exceed baseline requirements and inspire engagement or enthusiasm by addressing high-impact needs; these attributes enhance user experience and drive greater adoption

Each level is further divided into Positive, Negative, and Neutral categories

(University of Pennsylvania, 2012):

- **Positive Attributes** include features that add value, enhance usability, or improve efficiency
- **Negative Attributes** identify potential shortcomings or risks that must be mitigated to ensure success
- **Neutral Attributes** represent factors with minimal impact on the system's effectiveness but may affect implementation preferences or usability

The framework provides a structured approach to evaluating and prioritizing features by categorizing attributes into these hierarchical levels and classifications. This ensures that the AAR template meets essential functional requirements and addresses specific operational challenges while fostering user engagement and adaptability.

Additional terms in Table 10 include (University of Pennsylvania, 2012):

- **Nonnegotiables:** These are foundational elements that must be included for the template to function effectively; they represent the “must-have” features that ensure the template meets its core objectives and is universally adopted
- **Tolerables:** These are aspects of the template that may not be ideal but are manageable or acceptable within the operational environment; they often involve trade-offs that do not impede the overall functionality
- **So-Whats:** These are neutral elements or features that neither enhance nor detract from the template's effectiveness; they are typically optional or do not significantly impact usability or performance
- **Differentiators:** These attributes set the template apart from other tools by addressing specific needs or challenges unique to contracting and operational environments; they add value by tailoring the template to its intended users
- **Dissatisfiers:** These are elements that detract from the user experience or effectiveness of the template; they must be addressed to ensure adoption and avoid negative outcomes, such as inefficiency or frustration
- **Exciters:** These are high-value features that actively engage users and enhance the template's effectiveness; they inspire enthusiasm and improve operational outcomes by exceeding basic expectations



- **Enragers, Terrifiers, Disgusters:** These represent critical risks or negative elements that could undermine the template's success; if not mitigated, they can lead to significant dissatisfaction or operational failures
- **Parallel Differentiators:** These are features that ensure consistency and ease of use across different user groups or operational contexts; they facilitate broad usability while maintaining alignment with strategic objectives

## 2. Application to the AAR Template

Building on this framework, the research team adapted the attribute categories to address the unique needs of DAF Contracting:

- **Basic Attributes**
  - **Positive:** Standardized templates ensure consistent use across the enterprise, forming the bedrock of the AAR process
  - **Negative:** Questions must balance simplicity and depth to avoid incomplete or superficial responses
  - **Neutral:** The format (e.g., PDF, Microsoft Word, or Microsoft Forms) is flexible and does not affect the template's core functionality
- **Discriminator Attributes**
  - **Positive:** Tailored content eliminates irrelevant information, making reports actionable and operationally aligned
  - **Negative:** Removing extraneous content ensures clarity without compromising completeness
  - **Neutral:** A simple, user-friendly design improves feedback quality and accessibility
- **Energizer Attributes**
  - **Positive:** Real-time, actionable data drives decision-making, enabling strategic alignment and better mission outcomes
  - **Negative:** Quality control mechanisms are critical to ensure the accuracy and relevancy of submitted reports, requiring additional oversight and processes
- **Nonnegotiables:** A standardized template that has been trained on and is utilized by all parties; these foundational elements ensure the AAR template functions effectively by meeting its core objectives and being universally adopted across users



- **Tolerables:** Questions must be easy to answer yet detailed enough to capture important information; these manageable aspects ensure trade-offs do not impede the overall functionality of the AAR template
- **So-Whats:** The template format (e.g., PDF, Microsoft Word, or Forms) does not impact its effectiveness; these are neutral elements that neither enhance nor detract from usability or performance
- **Differentiators:** The template is tailored to contracting, avoiding unnecessary details or irrelevant information; these attributes set the template apart by addressing specific contracting needs and enhancing its relevance and usability
- **Dissatisfiers:** The template must eliminate extraneous information, such as overly complex AFI-driven examples or local templates inconsistent with current Lessons Learned guidance; these elements detract from effectiveness and must be addressed to prevent inefficiencies or frustration
- **Exciters:** Provide recent, relevant information to minimize idle time upon arrival in the AOR; enable data-driven decisions to support operational plans, unit structure, capability gap analysis, and risk reduction
- **Enragers, Terrifiers, Disgusters:** This requires a quality review mechanism to ensure accuracy and relevancy before submission; if not mitigated, these critical risks can lead to dissatisfaction or operational failures, emphasizing the need for actionable and reliable outputs
- **Parallel Differentiators:** Must be user-friendly and straightforward, ensuring all parties can effectively complete the AAR with valuable feedback; these features facilitate consistency and usability across different user groups or operational contexts, aligning with strategic objectives

By leveraging this framework, the team ensured that the AAR template is operationally relevant, user-centric, and adaptable to evolving mission needs. This table and accompanying narrative underscore how the research process systematically refined the template's design and functionality.

In line with the iterative processes central to the Lean Launchpad method, the attribute map provides a roadmap for refining an AAR GPT tool (University of Pennsylvania, 2012):

- **Simplifying Complexity:** The tool identifies and flags low-quality or missing data
- **Tailoring Outputs:** It highlights actionable recommendations that align with beneficiary needs
- **Focusing on Exciters:** Features like real-time analysis enhance operational decision-making while addressing user frustrations such as inconsistent reporting





For example, the map's emphasis on actionable insights ensures that the tool's outputs resonate with key beneficiaries, such as CCOs and mission planners. Meanwhile, addressing enragers (e.g., unreliable submissions) through quality controls like reviews at different leadership echelons ensures the tool delivers high-value, credible results. MacMillan and McGrath (1996) note that sustainable product strategies focus on enhancing attributes that users value most while mitigating negatives that hinder adoption. By applying these principles, the attribute map ensures the proof-of-concept tool is relevant and scalable, creating a foundation for continuous improvement and adoption across DAF Contracting.

### **3. AI Analysis Proof-of-Concept Framework**

This proof-of-concept investigated the feasibility of AI-driven solutions to streamline AAR processing, enhance data aggregation, and generate actionable insights. The research team evaluated various AI tools for their ability to align with the core AAR template components—Event Name, Operational Insights, Challenges/Risks/Enhancements, Lessons Learned, and Conclusion.

To simulate realistic operational conditions, the research team developed Dummy AARs reflecting scenarios typical of Expeditionary Advanced Base (EAB) operations. Informed by Unit Type Codes (UTCs)—five-character alphanumeric codes used by the DoD to define modular capabilities for operational planning and execution—these Dummy AARs added contextual realism while aligning AI-generated outputs with the standardized AAR components (Department of the Air Force, 2021). Although the Dummy AARs incorporated UTC-inspired elements to ensure operational authenticity, the evaluation criteria focused solely on the AI tools' ability to meet the AAR framework's requirements. This streamlined approach prioritized the optimization of AI-generated outputs to enhance the documentation, analysis, and application of operational insights within the AAR ecosystem.

The research team followed a structured and iterative process to execute the AI analysis proof-of-concept effectively. This systematic approach ensured the thorough evaluation of multiple AI tools for their suitability in improving AAR synthesis and





aligning with operational requirements. The process was broken into the following key steps:

***a. Market Research and Tool Selection***

Comprehensive market research was conducted to identify AI tools capable of supporting AAR synthesis. The selection process focused on accessibility, functionality, the ability to process multi-document inputs, and compatibility with user-defined prompts. While the ability to handle controlled unclassified information (CUI) was also considered, it was not used to exclude GPT platforms, as many tools currently need this capability. Based on these criteria, tools such as Ask Sage, ChatGPT 4o, Claude 3.5, and others were shortlisted for their potential to align with AAR components and meet operational requirements.

***b. Development of Mock AARs***

To simulate real-world operational conditions, the research team generated Dummy AARs based on realistic scenarios using UTCs such as XFFK7, XFFK8, and XFFK9 (Halle, 2024). These codes represent key roles within EAB operations under the AFFORGEN framework, adding authenticity and relevance to the test cases. Including UTC-specific tasks and responsibilities created contextually rich use cases for evaluating AI tool performance.

***c. GPT Development and Foundational Knowledge Base***

Structured prompts were developed to align with core AAR template components—Event Name, Operational Insights, Challenges/Risks/Enhancements, Lessons Learned, and Conclusion. These prompts were crafted to test each AI tool’s ability to interpret and process key themes within the AAR framework. Inputs included deployment objectives, operational challenges, and contextual details, such as geopolitical complexities and coalition partnership dynamics, ensuring the outputs reflected the complexity of real-world contracting operations.

The custom GPT environment was built using a robust foundational knowledge base comprising the following key documents:



- **DAF Contracting AAR Template:** Served as the primary structure for aligning AI-generated outputs with standardized reporting formats
- **AFI 10-1302 – Air Force Lessons Learned Program:** Provided guidelines on Lessons Learned and operational documentation standards
- **Defense Contingency Contracting Handbook (Version 5):** Offered foundational CCO competencies, operational context, OCS fundamentals, and best practices for contingency contracting in deployed environments
- **Joint Publication 4-10 – Operational Contract Support (2019):** Established foundational knowledge on OCS within joint force missions
- **Air Force Tactics, Techniques, and Procedures (AFTTP) 3-4.7 – Contingency Response:** Contributed insights into operational planning and execution for CCOs operating in contested, uncertain, humanitarian, and contingency environments

This curated knowledge base ensured that the GPT environment could synthesize data while adhering to established policies, operational frameworks, and doctrinal standards. By grounding the AI tools in these authoritative sources, the research team ensured that the outputs reflected accurate, mission-aligned, and operationally relevant insights.

#### *d. AI Tool Assessment and Output Evaluation*

Each AI tool was tasked with synthesizing the Dummy AARs based on the structured prompts. The outputs were analyzed for accuracy, alignment with the standardized AAR template, responsiveness to prompts, and the quality of synthesized content. Specific evaluation criteria included clarity, actionable insights, and adherence to the AAR framework.

#### *e. Iterative Refinement and Comparison*

The research team iteratively refined prompts and evaluated outputs across multiple cycles to enhance tool performance and capture the most accurate insights. This iterative process ensured continuous improvement in output quality, as tools that adhered to the AAR template and provided actionable, relevant insights were identified as having the most potential for operational application.



***f. Simulation of Realistic Use Cases***

A series of Dummy AARs were generated to simulate the deployment experiences of a 10-member contracting team operating under the AFFORGEN framework in the Philippines. Team roles included commanders, SELs, directors of operations, and multiple CCOs with varying experience levels supporting fixed-base operations and a hub-and-spoke model for regional missions (Halle, 2024). The generated AARs captured diverse deployment experiences, emphasizing usability and operational complexity.

***g. Evaluation of AI Tools for AAR Synthesis***

The research team evaluated the capabilities, limitations, benefits, and recommendations for various AI tools based on their performance in AAR synthesis. Adherence to user prompts was a key criterion, reflecting each tool's ability to interpret structured inputs aligned with the standardized AAR framework. Effective tools were expected to generate actionable reports by synthesizing data from multiple AARs, identifying patterns, and producing insights tailored to operational needs. Compatibility with CUI was also prioritized to ensure the secure handling of sensitive data, a critical requirement in military and government operations. The research team utilized the free versions of various GPT-based tools to evaluate their baseline capabilities for the proof-of-concept. These tools demonstrated potential for enhancing AAR synthesis and analysis; however, free versions inherently limited the scope of functionality available for testing.

**4. Ranked Recommendations for AI Tools**

The following recommendations, summarized in Table 11, provide an organized ranking of AI tools evaluated during the proof-of-concept phase for AAR synthesis. Tools were assessed for their ability to synthesize multiple documents, adhere to user prompts, and align with CUI requirements. These rankings highlight each tool's potential to support DAF Contracting in generating secure, actionable, and compliant outputs, particularly in scenarios where operational decision-making relies on robust data synthesis. The tiered recommendations—Highly Recommended, Recommended with



Refinements, and Not Recommended—offer a clear guide for selecting AI solutions tailored to specific operational needs.

*a. Highly Recommended*

(1) Ask Sage

- **Recommendation:** Highly recommended for CUI environments
- **Rationale:** Supports For Official Use Only (FOUO)/CUI data, adheres to user prompts effectively, and demonstrates strong multi-document synthesis capabilities. It offers robust data security and clear outputs, making it suitable for synthesizing multiple AARs into actionable reports in sensitive and mission-critical tasks
- **Use Case:** Ideal for generating secure, actionable AAR insights in classified or controlled environments

(2) NIPR GPT

- **Recommendation:** Highly recommended for secure environments
- **Rationale:** Approved for CUI use and features multi-user workspaces. Adheres to prompts for AAR components with strong synthesis capabilities, though output formatting requires refinement
- **Use Case:** Effective for synthesizing secure data and generating detailed, user-focused reports in line with AAR requirements

*b. Recommended with Refinements*

(1) ChatGPT 4o

- **Recommendation:** Recommended for unclassified applications
- **Rationale:** Performs well in aggregating and synthesizing multiple documents. Adheres to prompts effectively, delivering detailed and actionable outputs, though it lacks CUI compliance
- **Use Case:** Suitable for iterative feedback loops and general AAR synthesis in non-secure environments

(2) Small PDF

- **Recommendation:** Recommended for non-classified use
- **Rationale:** Demonstrates effective summarization of multiple documents with minimal re-prompting. Outputs are well-formatted to match AAR templates, but the tool does not support CUI



- **Use Case:** Best for non-secure applications requiring quick and organized AAR summaries

(3) Notebook LM

- **Recommendation:** Recommended for general use pending government approval
- **Rationale:** Excels at aggregating and synthesizing information across multiple documents. However, it lacks CUI approval and compatibility with some document formats, such as Microsoft Word
- **Use Case:** Useful for comprehensive, non-classified summaries that align with AAR components

*c. Not Recommended*

(1) Co-Pilot

- **Rationale:** Does not handle multi-document synthesis effectively and struggles with adhering to user prompts for AAR components. Outputs are often incomplete and unsuitable for operationally relevant tasks
- **Use Case:** Limited applicability; better suited for basic document review rather than AAR synthesis

(2) Claude 3.5

- **Rationale:** While user-friendly, it lacks CUI compatibility and struggles to synthesize multiple documents into actionable insights. Outputs often lack depth and relevance to AAR components
- **Use Case:** Best avoided for tasks requiring precision and detailed synthesis

(3) Microsoft Azure AI

- **Rationale:** Difficult to navigate and offers poor synthesis capabilities. Outputs fail to aggregate insights effectively and lack the clarity needed for AAR synthesis tasks
- **Use Case:** Limited functionality; significant refinement needed for practical use in AAR processing



Table 11. GPT-Feasibility Matrix

AI Tool	Capabilities	Limitations	Benefits	Results & Recommendations	Recommendation for Use
<b>Ask Sage</b>	<ul style="list-style-type: none"> <li>Handles classified data</li> <li>Supports multi-document synthesis</li> <li>Links to Google File Management for collaboration</li> </ul>	<ul style="list-style-type: none"> <li>Minor consistency issues</li> <li>Requires multiple prompts to refine synthesized content</li> </ul>	<ul style="list-style-type: none"> <li>Approved for CUI</li> <li>Scalable for secure workflows</li> </ul>	<ul style="list-style-type: none"> <li>Highly recommended for CUI environments</li> <li>Supports FOUO/CUI data, adheres to user prompts effectively, and demonstrates strong multi-document synthesis capabilities</li> <li>Ideal for generating secure, actionable AAR insights in classified or controlled environments</li> </ul>	<b>Highly Recommend</b>
<b>NIPR GPT</b>	<ul style="list-style-type: none"> <li>Processes classified data effectively</li> <li>Supports bulk uploads and collaborative workflows</li> </ul>	<ul style="list-style-type: none"> <li>Steep learning curve for new users</li> <li>Outputs may require refinement to align with user expectations</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> <li>Approved for CUI environments</li> <li>Enables centralized collaboration and synthesis</li> </ul>	<ul style="list-style-type: none"> <li>Highly recommended for secure environments</li> <li>Adheres to prompts for AAR components with strong synthesis capabilities, though output formatting requires refinement</li> <li>Effective for synthesizing secure data and generating detailed, user-focused reports in line with AAR requirements</li> </ul>	<b>Highly Recommend</b>
<b>ChatGPT 4o</b>	<ul style="list-style-type: none"> <li>Processes multiple documents into detailed and structured summaries</li> <li>Customizable to user needs</li> </ul>	<ul style="list-style-type: none"> <li>Not approved for CUI or classified environments</li> <li>Requires specific prompts for tailored outputs</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> <li>Intuitive interface</li> <li>Delivers actionable summaries aligned with user-defined report formats</li> </ul>	<ul style="list-style-type: none"> <li>Recommended for unclassified applications</li> <li>Performs well in aggregating and synthesizing multiple documents</li> <li>Suitable for iterative feedback loops and general AAR synthesis in non-secure environments</li> </ul>	<b>Recommend with Refinements</b>
<b>Small PDF</b>	<ul style="list-style-type: none"> <li>Processes multiple documents to identify key details and recurring themes</li> <li>Auto-formats outputs</li> </ul>	<ul style="list-style-type: none"> <li>Not approved for CUI</li> <li>Limited customization options and occasional formatting inconsistencies</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> <li>Efficient for identifying essential information and drafting preliminary reports</li> </ul>	<ul style="list-style-type: none"> <li>Recommended for non-classified use</li> <li>Demonstrates effective summarization of multiple documents with minimal re-prompting</li> <li>Outputs are well-formatted to match AAR templates but do not support CUI</li> <li>Best for non-secure applications requiring quick and organized AAR summaries</li> </ul>	<b>Recommend with Refinements</b>
<b>Notebook LM</b>	<ul style="list-style-type: none"> <li>Aggregates insights across documents</li> <li>Links references back to sources for traceability</li> </ul>	<ul style="list-style-type: none"> <li>Limited to PDF inputs</li> <li>Does not support Word documents</li> <li>Not approved for CUI or classified use</li> </ul>	<ul style="list-style-type: none"> <li>Intuitive interface</li> <li>Provides detailed summaries with reference points for validation</li> </ul>	<ul style="list-style-type: none"> <li>Recommended for general use pending government approval</li> <li>Excels at aggregating and synthesizing information across multiple documents but lacks CUI approval and compatibility with some formats, such as Microsoft Word</li> <li>Useful for comprehensive, non-classified summaries that align with AAR components</li> </ul>	<b>Recommend with Refinements</b>
<b>Co-Pilot</b>	<ul style="list-style-type: none"> <li>Summarizes individual documents</li> <li>Encrypts data and links to repositories like Google Docs</li> </ul>	<ul style="list-style-type: none"> <li>Not approved for CUI or classified use</li> <li>Unable to synthesize across multiple documents</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> <li>Simple interface for standalone document analysis</li> </ul>	<ul style="list-style-type: none"> <li>Not recommended for AAR synthesis</li> <li>Does not handle multi-document synthesis effectively and struggles with adhering to user prompts for AAR components</li> <li>Outputs are often incomplete and unsuitable for operationally relevant tasks</li> </ul>	<b>Not Recommended</b>
<b>Claude 3.5</b>	<ul style="list-style-type: none"> <li>Generates concise summaries</li> <li>Supports limited file processing</li> </ul>	<ul style="list-style-type: none"> <li>Supports only five documents at once</li> <li>Outputs tend to default to high-level bullet points</li> </ul>	<ul style="list-style-type: none"> <li>Free to use</li> <li>Easy navigation</li> <li>Suitable for initial overviews or quick assessments</li> </ul>	<ul style="list-style-type: none"> <li>Not recommended for AAR synthesis</li> <li>While user-friendly, it lacks CUI compatibility and struggles to synthesize multiple documents into actionable insights</li> <li>Outputs often lack depth and relevance to AAR components</li> </ul>	<b>Not Recommended</b>
<b>Azure AI</b>	<ul style="list-style-type: none"> <li>Handles bulk uploads and generates high-level summaries</li> </ul>	<ul style="list-style-type: none"> <li>Challenging interface</li> <li>Focused on individual document analysis rather than aggregated insights</li> </ul>	<ul style="list-style-type: none"> <li>Scalable for large datasets</li> <li>Offers functionality beyond summarization</li> </ul>	<ul style="list-style-type: none"> <li>Not recommended for AAR synthesis tasks</li> <li>Difficult to navigate and offers poor synthesis capabilities</li> <li>Outputs fail to aggregate insights effectively and lack the clarity needed for AAR synthesis tasks</li> </ul>	<b>Not Recommended</b>



## **5. AI Tools Evaluation Results: Alignment with the AAR Template**

**Alignment with the AAR Template** This section highlights the proof-of-concept results, focusing on how two selected AI tools, Ask Sage and NIPR GPT, performed against key AAR components. These tools were chosen to provide a representative overview of the capabilities demonstrated during the evaluation. Their performance was analyzed based on alignment with the AAR template, responsiveness to user-defined prompts, the quality of their outputs, and areas for improvement.

As summarized in Table 12, the evaluation assessed each tool's performance across five key AAR components: Event Name, Operational Insights, Challenges/Risks/Enhancements, Lessons Learned, and Conclusion. The table comprehensively analyzes each tool's key outputs, strengths, weaknesses, and alignment ratings. A "High" rating for alignment assessments indicates consistent, accurate alignment requiring minimal prompt adjustments, with outputs that naturally fit requirements and maintain effectiveness across various use cases. A "Moderate" rating indicates general alignment, but requires additional formatting or prompt adjustment to fully meet specifications, with some manual refinement needed for optimal results.



Table 12. AI Tools and AAR Component Analysis

AAR Component	AI Tool	Key Outputs	Strengths	Weaknesses	Alignment with Prompts	Alignment with AAR Template
Event Name	Ask Sage	Synthesized detailed mission events	Handles multi-document synthesis	Requires multiple prompts for nuanced results	HIGH	MODERATE
	NIPR GPT	Accurately captured mission events and metadata	<ul style="list-style-type: none"> <li>CUI approved</li> <li>Integrates across collaborative teams</li> </ul>	Formatting inconsistencies in outputs	HIGH	HIGH
Operational Insights	Ask Sage	Identified patterns in mission tempo	Consistent synthesis of complex inputs	Needs iterative adjustments for deeper insights	HIGH	MODERATE
	NIPR GPT	Highlighted recurring operational challenges	Excellent data integration and analysis	Requires re-prompting for some nuanced insights	HIGH	HIGH
Challenges, Risks, Enhancements	Ask Sage	Synthesized actionable challenges and solutions	Robust handling of large data sets	May need additional sources to improve accuracy	HIGH	MODERATE
	NIPR GPT	Detailed risk assessment and mitigation strategies	<ul style="list-style-type: none"> <li>Supports CUI data</li> <li>Enabling secure collaboration</li> </ul>	Requires refinement in presenting synthesized outputs	HIGH	HIGH
Lessons Learned	Ask Sage	Provided structured lessons with context	Tailored summaries based on inputs	May miss nuanced details in smaller data sets	HIGH	MODERATE
	NIPR GPT	Comprehensive lessons learned with detailed examples	Collaborative functionality	Requires iterative prompting for clarity	HIGH	HIGH
Conclusion	ChatGPT 4o	Generated concise summaries with actionable takeaways	<ul style="list-style-type: none"> <li>Clear outputs</li> <li>Secure data handling</li> </ul>	Slightly overburdened with repetitive details	HIGH	HIGH
	Claude 3.5	Synthesized forward-looking operational recommendations	<ul style="list-style-type: none"> <li>Scalable for multi-user environments</li> </ul>	Formatting issues reduce usability	HIGH	HIGH





The decision to feature these two tools reflects a strategic emphasis on showcasing the diverse capabilities demonstrated during the proof-of-concept. Both Ask Sage and NIPR GPT were highlighted for their compatibility with CUI requirements, a critical factor for secure operations. Ask Sage excelled in synthesizing operational insights, particularly identifying nuanced patterns, lessons learned, and trends from multi-document inputs. NIPR GPT was selected for its robust handling of challenges and risks, delivering comprehensive outputs aligned with the standardized AAR framework while maintaining data security.

The evaluation identified the following key findings:

- **Strengths:** Ask Sage demonstrated high alignment by synthesizing operational insights accurately and clearly. It excelled at uncovering patterns across multiple documents and providing detailed, actionable outputs tailored to operational needs. NIPR GPT consistently matched user-defined prompts with minimal rework and excelled in capturing risks and challenges. Its outputs adhered closely to the AAR structure and provided comprehensive, mission-relevant insights.
- **Weaknesses:** Ask Sage required iterative refinements to fully capture nuanced insights and trends, which could increase the time needed for prompt adjustments during operational use. Some consistency issues in synthesizing data were noted, necessitating further refinement for optimal performance. NIPR GPT's formatting, although strong in delivering structured outputs, often required additional manual adjustments to align fully with the AAR template. This extra step may affect efficiency in scenarios requiring rapid turnaround times.

The decision to spotlight these tools underscores their potential to meet DAF Contracting's operational needs for secure, compliant, and actionable AAR synthesis. By aligning outputs with core AAR components, Ask Sage and NIPR GPT set a benchmark for leveraging AI to improve documentation, analysis, and decision-making processes while highlighting areas where further refinement could enhance usability and operational integration.

## 6. Recommendations and Future Applications

The proof-of-concept highlighted the potential of AI tools like Ask Sage and NIPR GPT for secure and accurate AAR synthesis in classified and operationally sensitive environments. These tools' ability to aggregate data and provide actionable



insights can significantly reduce the time and effort required for manual AAR processing. However, challenges such as inconsistent output formats and the need for iterative prompting must be addressed through targeted refinements, including expanding the source documents to enhance the GPTs' foundational knowledge base, thereby increasing output specificity and accuracy.

To enhance the adoption of AI-driven AAR synthesis, the research team recommends:

- Integrating Ask Sage for CUI-related AARs (see Appendix D)
- Conducting iterative testing with tools like ChatGPT 4o to refine outputs for unclassified applications
- Developing user training modules to maximize tool efficacy and address limitations
- Establishing a centralized repository for AI-processed AARs to streamline access and analysis
- Developing a list of GPT prompts proven to generate the desired analysis for knowledge-sharing

### **C. AAR ECOSYSTEM: CONCEPT AND IMPLEMENTATION**

The AAR ecosystem is a comprehensive solution devised by the research team to institutionalize AARs as a critical tool for operational readiness and continuous improvement. The ecosystem leverages standardized templates, centralized data repositories, advanced analytics, and iterative feedback loops to align with the AFFORGEN framework and the broader strategic goals.



## 1. AAR Ecosystem Napkin Sketch

Figure 4 provides a conceptual overview of the AAR ecosystem using a “napkin sketch” approach inspired by Blank (2011). This visual illustrates the ecosystem’s essential components, focusing on simplicity while addressing the critical needs of its beneficiaries. The following sections detail each process step, highlighting how these interconnected components drive continuous learning, operational improvement, and

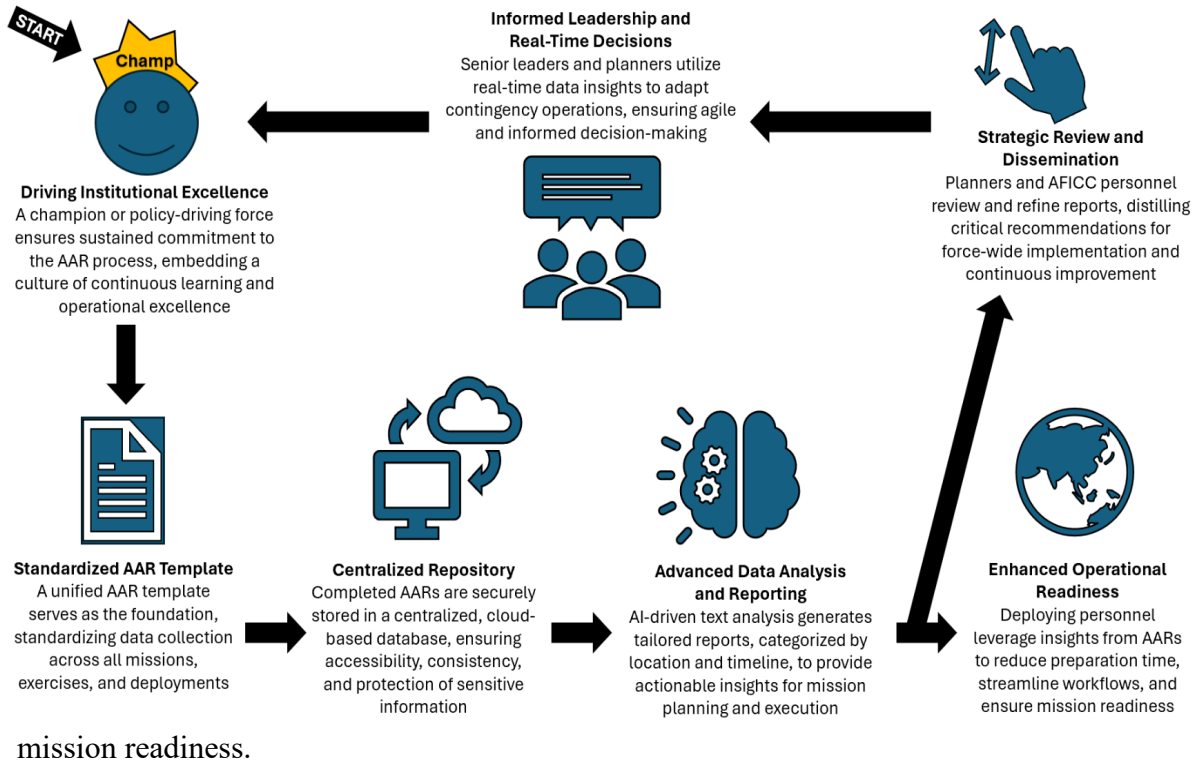


Figure 4. AAR Ecosystem Napkin Sketch

### a. *Champion (Driving Institutional Excellence)*

The AAR ecosystem begins with a Champion, who serves as the driving force behind the process. This individual or policy-driving force ensures a sustained commitment to the AAR framework, embedding a culture of continuous learning and operational excellence. By championing institutional adoption, they establish the foundation for an effective and impactful AAR process.

***b. Standardized AAR Template***

With the Champion's leadership, the process transitions to using a Standardized AAR Template, which provides a consistent format for collecting critical data across missions, exercises, and deployments. This uniformity ensures high-quality data collection, forming the basis for meaningful analysis and actionable insights that address stakeholder needs.

***c. Centralized Repository***

Collected AARs are securely stored in a Centralized Repository, a cloud-based database that ensures accessibility, consistency, and protection of sensitive information. This repository eliminates silos and creates an enterprise-wide resource for retrieving and utilizing historical data, enabling further analysis and operational improvements.

***d. Advanced Data Analysis and Reporting***

From the centralized repository, the process moves to Advanced Data Analysis and Reporting, where artificial intelligence and machine learning tools analyze the data. These tools tailor insights by categorizing information based on location, timeline, and mission context, generating actionable intelligence. This step empowers CCOs, planners, and leaders with the knowledge they need to identify trends, address challenges, and enhance mission effectiveness. From here, the process can either move directly to Enhanced Operational Readiness to apply the insights or continue to Strategic Review and Dissemination for additional refinement before implementation.

***e. Enhanced Operational Readiness***

If the process flows into Enhanced Operational Readiness, deploying personnel use the insights derived from the AAR process to streamline workflows, reduce preparation times, and address mission-critical challenges. This direct application of data-driven insights ensures that lessons learned are immediately operationalized, enhancing readiness and effectiveness.



***f. Strategic Review and Dissemination***

Alternatively, if the process flows into Strategic Review and Dissemination, planners and AFICC personnel refine the insights generated during analysis into actionable recommendations. These tailored findings are shared with stakeholders across the enterprise to ensure alignment with specific organizational goals. This stage emphasizes collaboration and helps bridge strategic objectives with tactical execution.

***g. Informed Leadership and Real-Time Decisions***

The process leads to Informed Leadership and Real-Time Decisions, where senior leaders and planners leverage the refined insights to adapt contingency operations dynamically. This step ensures that decisions are timely, informed, and aligned with evolving mission needs, closing the loop as the process transitions back to the Champion to drive institutional learning and continued improvement.

***h. Champion (The Process Repeats)***

As the process transitions back to the Champion, their role as a driving force is reinforced, ensuring that insights from previous cycles are institutionalized into a culture of continuous learning and operational excellence. The Champion leverages the refined outcomes from Informed Leadership and Real-Time Decisions to advocate for further advancements in the AAR framework, fostering a feedback loop that supports strategic innovation and tactical adaptability. By consistently championing the value of the AAR process, they ensure the cycle remains dynamic, responsive to evolving mission requirements, and aligned with organizational goals. This iterative approach strengthens the foundation for future operations, reinforcing a culture of data-driven decision-making and sustained readiness.

**2. AAR Process Map and Feedback Loop**

Building on the conceptual foundation of the napkin sketch, Figure 5 provides a detailed process map of the AAR ecosystem, illustrating how data flows through the system and transforms into actionable insights. This map highlights the integration of tools, processes, and stakeholders in creating a sustainable AAR framework that supports



iterative feedback and informed decision-making. Table 12 complements this visualization by providing detailed descriptions of each process step, offering a comprehensive breakdown of the components of the AAR ecosystem.



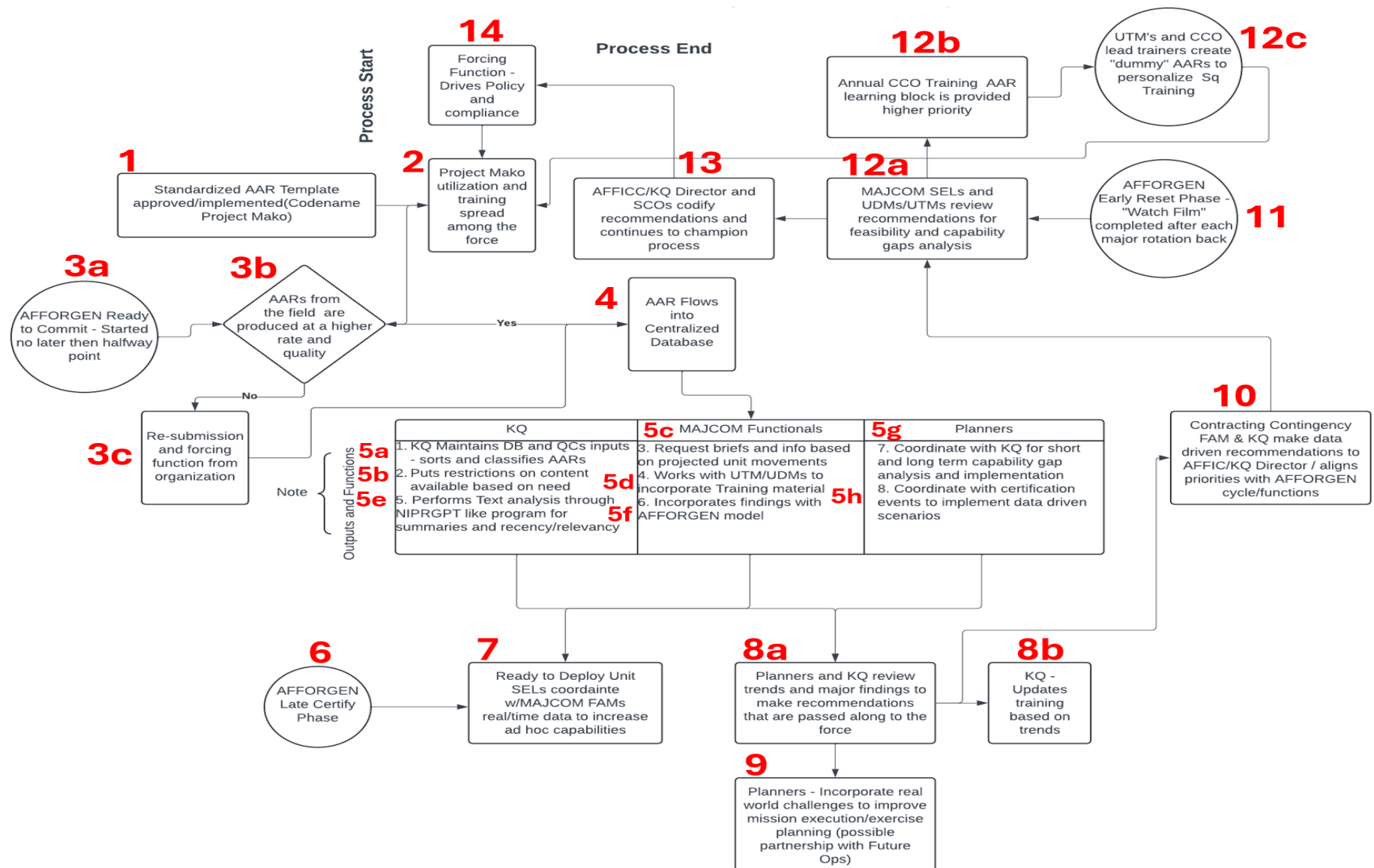


Figure 5. AAR Process Map and Feedback Loop



Table 13. AAR Process Map and Feedback Loop Components

Step	Process	Description	Step	Process	Description
1	Template Implementation	Standardized AAR Template approved then implemented	5h	<b>Certify Phase</b>	Findings from AARs inform readiness validation, feeding into large-scale exercises and peak readiness evaluations
2	Training & Distribution	Template utilization and training spread among DAF Contracting	6	AFFORGEN Certification	Later in Certify phase
3a	<b>Available to Commit Phase</b>	Units generate high-quality AARs during rotational deployments and Ready Response operations, capturing lessons learned in real time	7	Coordination	Reach-back to unit Senior Enlisted Leaders to coordinate with MAJCOM FAMs
3b	Field Production	AARs produced at higher rate and quality	8a-b	Review & Updates	AFICC/KQ Planners review trends; updates training based on trends
3c	Quality Control	Re-submission and forcing function from organization	9	Planning Integration	Incorporates real-world challenges into planning and mission execution
4	Data Collection	AAR flows into centralized database (e.g., AF Contracting Central)	10	Recommendations	Aligns priorities with AFFORGEN cycle and mission requirements to ready Force
5a	Database Management	AFICC/KQ Maintains database and reviews inputs; sorts and classifies AARs	11	<b>Reset Phase</b>	"Watch Film" (see Ch V, section D, bullet 5) enables post-deployment review, providing reintegration and readiness insights for future planning
5b	Access Control	Puts restrictions on content available based on need	12a	Capability Analysis	MAJCOM review of feasibility of AAR recommendations and implementation
5c	MAJCOM Integration	Request briefs, incorporates training material, and aligns with AFFORGEN	12b	Training Priority	Annual CCO Training AAR module prioritized and revised as-needed
5d-e	Analysis Process	Text analysis through NIPRGPT for summaries and relevancy	12c	Training Development	Create "dummy" AARs for squadron training
5f	<b>Prepare Phase</b>	Text analysis outputs (e.g., trends, risks) refine training programs, supporting advanced/full-spectrum training for readiness building	13	Process Champion	AFFICC/KQ Director and SCOs codify recommendations
5g	Findings	FAMs incorporate and align findings from AARs into AFFORGEN phases to enhance CCO training and effectiveness	14	Policy Driver	Implement forcing function to drive policy and compliance



The process begins with the standardized AAR template (Step 1), which provides a consistent format for collecting actionable data during missions, exercises, and deployments. Project Mako (Step 2) facilitates the rollout of this template, which infers the dissemination of standardized AAR training across the force. While Project Mako was not fully developed as an MVP due to time constraints, it is a conceptual placeholder for future efforts to institutionalize AAR practices and ensure consistent training across all units.

During the Available to Commit phase (Step 3a), units actively participate in field operations and deployments, generating AARs at an increased rate and higher quality. These AARs flow into a centralized database (Step 4) for secure storage, categorization, and future analysis. Submissions not meeting quality standards are returned to units for refinement (Step 3c), reinforcing the importance of thorough and accurate reporting.

Within the KQ team's responsibilities (Steps 5a–5e), collected AARs are processed through backend functions, including sorting, classifying, and performing advanced text analysis. While CCOs do not directly perform text analysis, the outputs of this process—such as categorized insights, key trends, and operational gaps—are available for them to utilize as part of their preparation and market research. By accessing these results, CCOs can tailor their operational strategies, refine mission support, and enhance their understanding of the operational environment.

In the Prepare phase, CCOs practice using the AAR template during training sessions and full-spectrum exercises. These training activities ensure that CCOs can apply the template in real-world scenarios. The insights derived from the KQ team's text analysis (Step 5f) further refine these training efforts by providing actionable intelligence on market trends, risk factors, and emerging challenges. Additionally, MAJCOM functional teams (Step 5c) and planners (Steps 5g and 5h) are pivotal in tailoring these training programs and incorporating scenario-based exercises that reflect operational needs.

The Certify phase (Step 5h) builds on these efforts by validating readiness through large-scale certification events, joint exercises, and peak evaluations



(Defense.gov, 2023). These events leverage insights generated from AARs and training activities to refine strategies, address gaps, and ensure that units are mission-ready.

As units transition into the Late Certify phase (Step 6) and Ready to Deploy phase (Step 7), SELs coordinate with MAJCOM FAMs to ensure that findings from AARs are incorporated into real-time data assessments. These efforts enable ad hoc adjustments to training and operational readiness, addressing last-minute capability gaps identified during pre-deployment activities.

In Steps 8a and 8b, planners and KQ teams review significant findings and refine recommendations based on trends observed in AARs. These reviews support updates to training materials and operational guidelines, ensuring that emerging challenges are addressed before the next deployment phase. Incorporating lessons learned during this stage helps improve the mission execution and exercise planning process, with planners (Step 9) integrating real-world challenges into future operational scenarios.

In Steps 10–13, findings from the AAR process flow through several stages to ensure actionable recommendations are implemented force-wide. First, during Step 10 (Recommendations), AAR insights are aligned with AFFORGEN cycles and mission requirements, providing clear priorities for readiness and operational improvements. This is followed by the Reset Phase Review (Step 11), which includes the “Watch Film” process to evaluate lessons learned after each rotation. This step supports reintegration efforts, identifies readiness gaps, and informs updates for future planning.

Subsequently, Steps 12a–12c focus on capability analysis, training prioritization, and the development of tailored training modules, including dummy AARs for squadron-level applications. A champion’s efforts (Step 13) ensure that refined recommendations are disseminated across the enterprise, driving policy compliance, fostering a culture of continuous learning, and ensuring that lessons learned in one cycle directly inform future training, operational planning, and deployment readiness.

Finally, a forcing function or champion (Step 14) sustains the system, driving policy compliance, fostering a learning culture, and institutionalizing the AAR process as a critical enabler of mission success. This role completes the feedback loop, ensuring continuous improvement and alignment with organizational goals (Defense.gov, 2023).



### 3. AAR Integration with the AFFORGEN Framework

The adapted AFFORGEN model (Figure 6) is the overarching framework that integrates the AAR process into the Air Force's 24-month readiness cycle, ensuring that insights derived from AARs are seamlessly incorporated into each readiness phase. Each step of the process map is aligned with the AFFORGEN cycle to enhance operational effectiveness, readiness, and mission success (Defense.gov, 2023).

Leveraging the established framework outlined in Figure 5 and Table 12, which detail the alignment of AAR activities with AFFORGEN phases, the integration ensures that data collection, analysis, and dissemination are directly tied to readiness objectives. These resources provide the structure and processes necessary to embed the AAR ecosystem into training, operational planning, and deployment strategies, reinforcing a seamless feedback loop that drives continuous improvement.

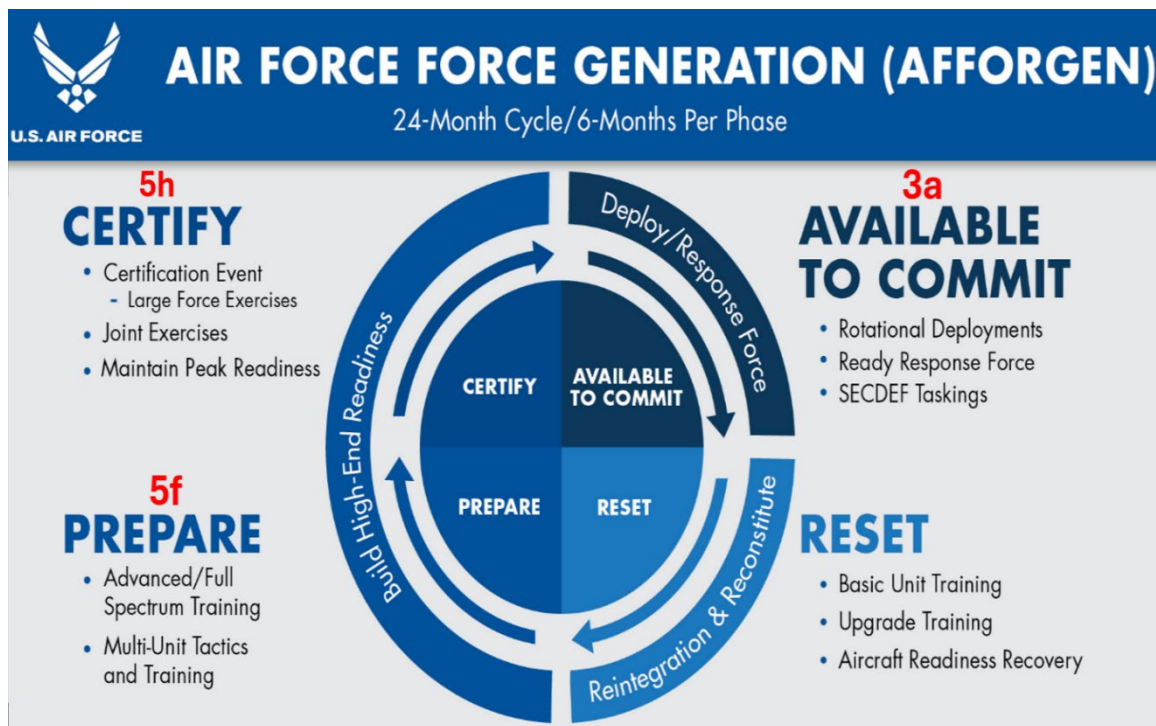


Figure 6. AFFORGEN Model and AAR Process Integration. Adapted from Defense.gov (2023).

#### **D. ECOSYSTEM SPORTS ANALOGY: ALIGNING AFFORGEN AND AAR CONCEPTS**

Drawing upon the AAR ecosystem's structured approach to institutionalizing AARs, this subsection introduces the AAR ecosystem sports analogy, which aligns the AFFORGEN model with the iterative learning processes of professional sports. The AAR ecosystem's focus on feedback loops and operational readiness finds a natural complement in the AFFORGEN model, which provides a standardized framework for balancing preparation, deployment, and recovery. By adopting a sports-centric framework, the analogy simplifies AFFORGEN's phases into relatable sports terms—Learn, Practice, Scrimmage, World Series, and Watch Film—while highlighting how agile combat employment (ACE) principles drive the need for adaptability, collaboration, and continuous improvement (Figure 7).

ACE, a pivotal operational concept for the U.S. Air Force, emphasizes dispersed and adaptive operations in austere environments (U.S. Air Force, 2022). As Everstine (2021) notes, ACE requires seamless integration between aviation units and agile combat support elements, demanding a cohesive force structure and standardized processes. The AAR ecosystem supports ACE by providing tools to capture and analyze lessons learned across geographically dispersed units, ensuring data-driven adaptability in dynamic operational contexts.



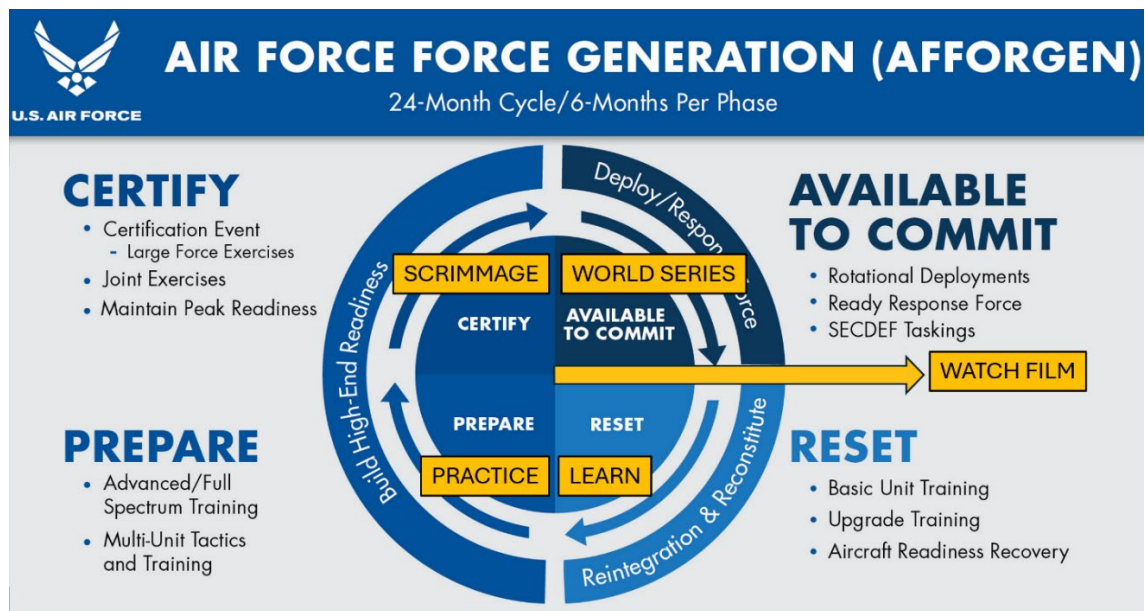


Figure 7. AFFORGEN Sports Analogy Phases. Adapted from Defense.gov (2023).

The following sections provide a detailed breakdown of each phase, illustrating how they collectively foster operational excellence and continuous improvement.

- **Learn (Reset Phase):** Aligned with the AFFORGEN Reset phase, the “Learn” phase emphasizes building foundational knowledge and skills (Figure 8). During this phase, units revisit essential competencies and become proficient with AAR tools, such as standardized templates and centralized repositories. These tools streamline lessons learned and equip personnel to rapidly adapt and respond in dynamic environments, a critical capability within the ACE framework. By mastering these processes, Airmen enhance their ability to sustain operations in austere and contested environments, where flexibility and efficiency are paramount (U.S. Air Force, 2022). As Everstine (2021) highlights, the Reset phase allows Airmen to recalibrate after deployments, ensuring readiness for future tasks.

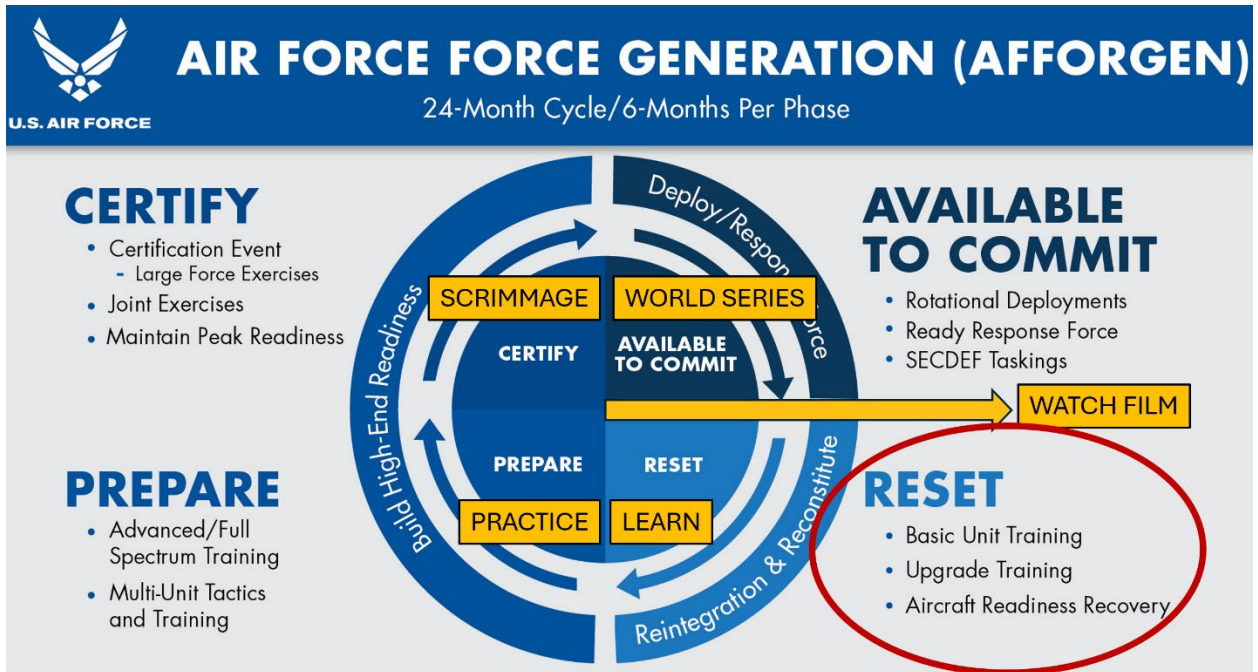


Figure 8. Sports Analogy Phases: Reset & Learn. Adapted from Defense.gov (2023).

- **Practice (Prepare Phase):** The “Practice” phase (Figure 9), corresponding to AFFORGEN’s Prepare phase, emphasizes advanced tactics and multi-unit exercises (U.S. Air Force, 2022). This phase integrates AAR processes into capstone training events, such as Silver Flag, where units practice adaptive operations in ACE environments. Everstine (2021) characterizes this phase as where units broaden their scope beyond individual operations to collaborate with others. The Practice phase mirrors team training in sports, emphasizing collaboration and preparation for real-world challenges.



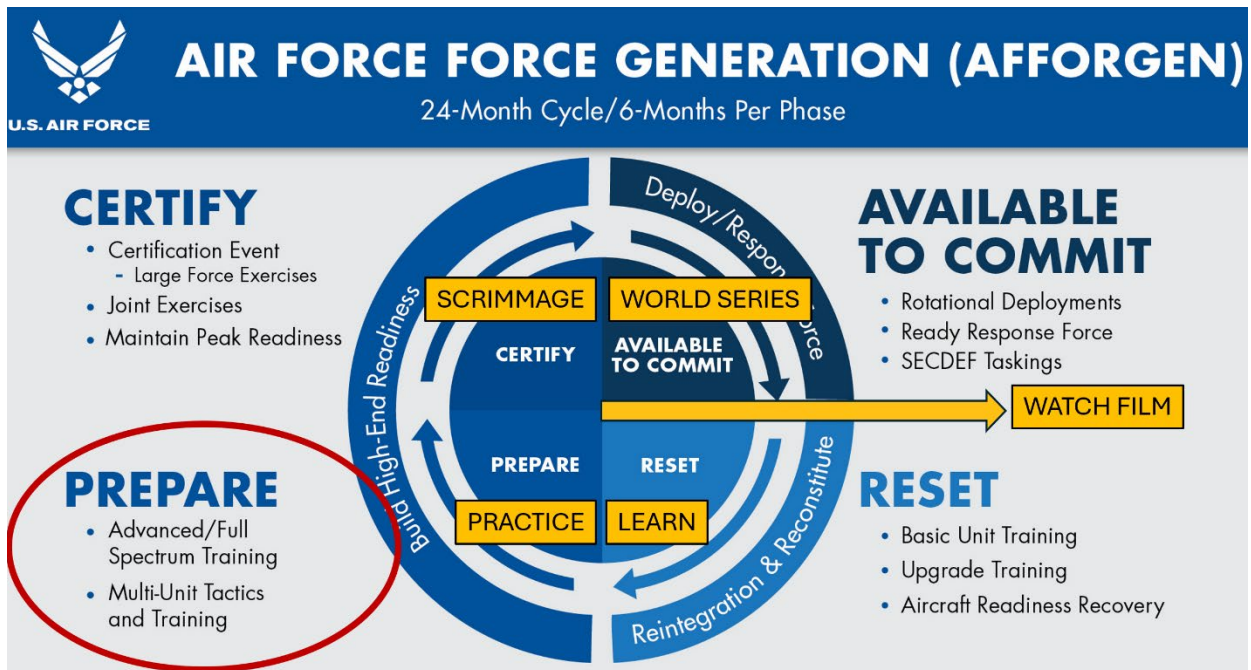


Figure 9. Sports Analogy Phases: Prepare and Practice. Adapted from Defense.gov (2023).

- **Scrimmage (Certify Phase):** In the “Scrimmage” phase, aligned with AFFORGEN’s Certify phase, units validate readiness through wing-level certification events or unit-driven exercises (Figure 10) (Defense.gov, 2023). For ACE operations, this phase tests a unit’s ability to execute dispersed operations, adapt to rapidly changing conditions, and sustain mission effectiveness in austere environments (U.S. Air Force, 2022). AARs play a pivotal role during this phase, capturing operational gaps, identifying best practices, and generating actionable insights that can be immediately applied to refine strategies and improve performance.

By integrating AARs into this phase, units can rapidly adjust tactics, improve logistics planning, and ensure continuity of operations in contested environments. This feedback loop is essential for fostering the agility and resilience that ACE operations demand, enabling teams to sustain high-end readiness even under constrained conditions.

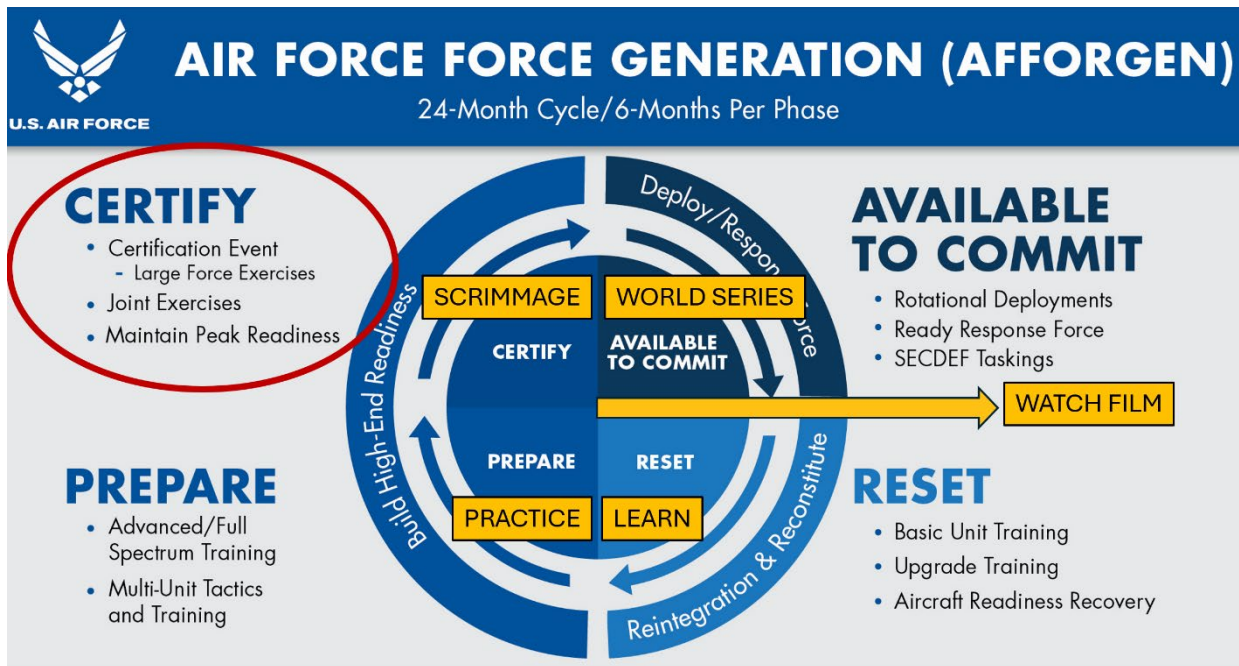


Figure 10. Sports Analogy Phases: Certify and Scrimmage. Adapted from Defense.gov (2023).

- World Series (Available to Commit Phase):** The “World Series” phase, corresponding to AFFORGEN’s Available to Commit phase, represents the operational peak (Figure 11). Units execute missions or stand ready for deployment, requiring seamless coordination between aviation and agile combat support elements—a cornerstone of ACE (U.S. Air Force, 2022). AARs are the primary tool for capturing real-time lessons learned and reintegrating operational insights into the ecosystem. By employing AI tools, such as those outlined in this research, actionable information can be quickly derived, enabling rapid adaptation to evolving mission requirements. This integration enhances decision-making by providing commanders and planners with advanced analytics that identify operational trends and gaps, ensuring units maintain a tactical advantage during operations. Larsen (2022) highlights the value of these tools in sustaining mission effectiveness in rapidly changing environments, aligning with ACE’s emphasis on agility and resilience.



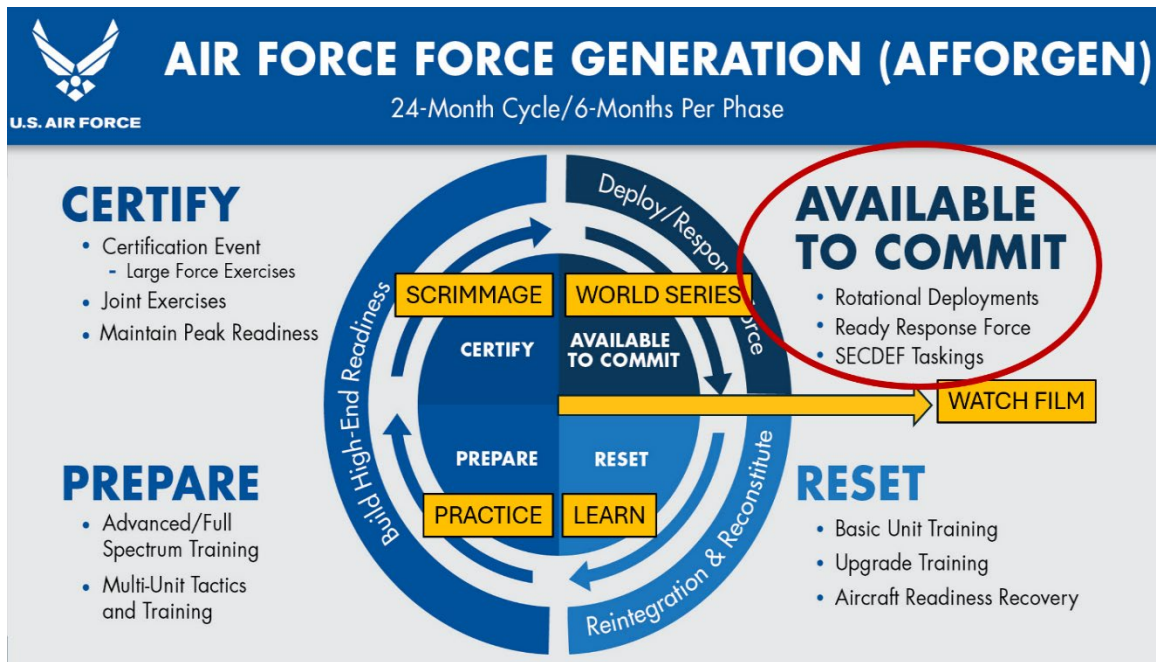


Figure 11. Sports Analogy Phases: Available to Commit and World Series.  
Adapted from Defense.gov (2023).

- **Watch Film (Post-Cycle Feedback):** The “Watch Film” phase, inspired by sports review processes, focuses on post-mission analysis (Figure 12). Although not explicitly linked to an AFFORGEN phase, this step is critical for ACE operations, where adaptability is paramount. Using tools such as GPT-based text analysis, the AFICC/KQ team identifies trends, evaluates mission outcomes, and refines operational strategies. As Everstine (2021) observes, the standardization of processes across MAJCOMs is vital for ensuring insights are effectively communicated and integrated into future operations.

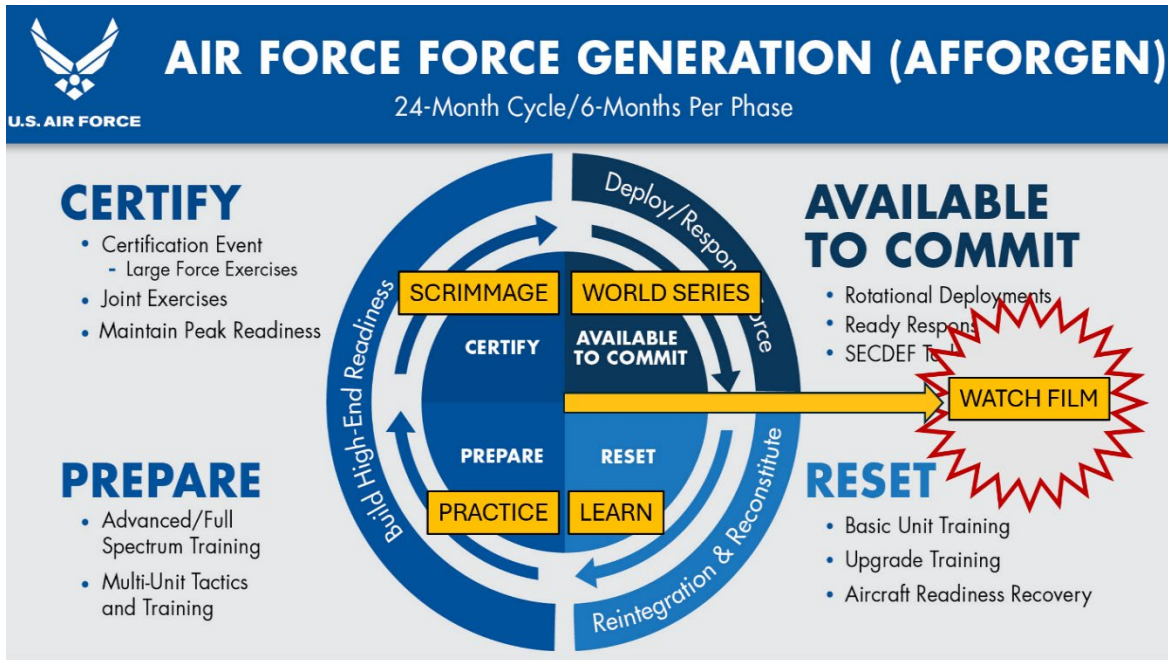


Figure 12. Sports Analogy Phases: Post-Cycle Feedback and Watch Film.  
Adapted from Defense.gov (2023).

- **Integrating the AAR Ecosystem, AFFORGEN, and ACE**

The AAR ecosystem sports analogy bridges AFFORGEN and ACE by embedding iterative feedback mechanisms into every phase of the readiness cycle. The framework ensures that lessons learned during training, certification, and deployment inform future operations, fostering adaptability and resilience in ACE environments. By aligning the AAR ecosystem with AFFORGEN and ACE, the research team emphasizes the importance of continuous learning, standardized processes, and data-driven decision-making to meet evolving mission demands.

As Everstine (2021) highlights, the AFFORGEN model's emphasis on readiness and discipline is critical to supporting the Air Force's role in joint operations and agile combat deployments. The AAR ecosystem complements this by providing the tools and processes necessary to institutionalize learning, optimize training, and sustain operational excellence.

## E. SUMMARY

Chapter V focuses on developing, testing, and refining MVPs to transform the AAR process within the DAF Contracting enterprise. This chapter presents actionable solutions tailored to address identified challenges and align with stakeholder needs. The AAR template serves as a cornerstone of this transformation, designed to standardize and enhance the capture of operational insights. Through iterative feedback from sponsors and beneficiaries, the research team refined the template to ensure it aligns with strategic

goals and user requirements. The chapter also introduces the AI-based text analysis proof-of-concept, which demonstrates the potential of AI to revolutionize AAR synthesis. The research team assessed tools like Ask Sage, NIPR GPT, and ChatGPT 4o for their ability to aggregate data, synthesize multiple inputs, and generate actionable outputs aligned with the AAR framework.

The chapter incorporates a conceptual AAR ecosystem to contextualize these developments. This ecosystem, depicted through a napkin sketch and process map, illustrates how AAR data flows through the organization. By aligning with the AFFORGEN framework, the ecosystem highlights the importance of feedback loops in fostering continuous learning and adaptation. This alignment ensures that operational insights are effectively integrated into training cycles and strategic planning. The findings in this chapter demonstrate that modernizing the AAR process through structured templates, AI integration, and ecosystem mapping is both feasible and valuable. The MVPs provide actionable solutions that enhance knowledge sharing, improve decision-making, and foster operational readiness within the contracting community.



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## **VI. FUTURE RESEARCH DIRECTIONS, LIMITATIONS, GAPS IN RESEARCH AND CONCLUSION**

The final chapter of this research consolidates key findings and presents actionable recommendations while also addressing limitations, identifying research gaps, and exploring future research opportunities. Beginning with specific, implementable recommendations derived from stakeholder feedback, MVP testing, and systematic analysis of the AAR ecosystem, this chapter provides practical steps to enhance the enterprise's ability to capture, analyze, and apply operational insights. The chapter then acknowledges methodological and practical constraints that influenced the study's scope and findings, highlighting areas where expanded methodologies and additional research could refine and validate the proposed solutions. Building upon these limitations and identified gaps, it outlines areas for future exploration that could drive further advancements in the AAR process, spanning technical, organizational, and cultural dimensions. Finally, the chapter synthesizes the research's contributions and potential impact on optimizing the AAR ecosystem for enhanced mission performance within the DAF Contracting Enterprise.

### **A. FUTURE RESEARCH DIRECTIONS**

Based on stakeholder feedback, MVP testing, and systematic analysis of the AAR ecosystem, several critical areas for improvement and further investigation emerge to optimize the AAR process across the enterprise. These recommendations emphasize actionable steps that can be quickly implemented to enhance the enterprise's ability to capture, analyze, and apply operational insights. While some recommendations may require policy adjustments or resource allocation, each represents a practical step toward improving mission performance.

Simultaneously, this research revealed several significant gaps that warrant additional investigation. These gaps highlight opportunities to deepen understanding of AAR effectiveness, refine implementation strategies, and address challenges across diverse operational contexts. By addressing these gaps, future research can build upon



this study's findings to drive further advancements in the AAR process within DAF Contracting.

- **The AAR Champion:** Successful implementation of the optimized AAR process requires dedicated advocacy at the enterprise and MAJCOM levels. The Army's systematic approach to AARs, as outlined in DA PAM 11-33, demonstrates how institutional support and clear leadership accountability drive consistent implementation and value creation (Department of the Army, 2022). Their model shows how designated AAR leaders at different organizational levels ensure systematic capture and application of lessons learned. Similarly, the AFICC sponsor's role as an AAR Champion is crucial for driving adoption, ensuring continuous improvement, and exploring potential policy changes to mandate AAR completion. Mastaglio et al. (2011) emphasize that effective AAR programs require leaders to understand facilitation principles and organizational dynamics. At the MAJCOM level, SCOs are ideally positioned to champion the template's use, facilitate testing of advanced analytics capabilities, and ensure insights gathered through AARs inform strategic planning and decision-making.
- **Centralized Repository:** While JLLIS serves as the DoD's primary lessons learned database, the unique requirements of DAF Contracting warrant a dedicated, accessible AAR storage and analysis platform. The Air Force Contracting Central website represents an optimal solution, as it already serves as the central hub for contracting resources, tools, guidance, and training across the enterprise. However, implementing this repository requires careful consideration of security classifications and access controls. As Morrison and Meliza (1999) note, effective knowledge management systems must balance accessibility with appropriate security measures. Future research should explore multi-level security requirements, access controls based on organizational roles, and protocols for handling sensitive operational information. This platform could provide secure, organized access to historical AAR data while enabling advanced analytics and trend analysis capabilities, integrating existing training resources and policy guidance to enhance its utility for authorized stakeholders across organizational levels.
- **Training:** The comprehensive instructions included in the AAR template provide a strong foundation for developing targeted training modules. These modules could be integrated into existing CCO training requirements, particularly within the Silver Flag course curriculum and annual CCO training scenarios. Given AFICC's role in shaping CCO training content, including Silver Flag instruction, they are well-positioned to incorporate AAR modules that enhance understanding of both template utilization and the broader importance of systematic lesson capture. Too and Weaver (2013) emphasize that focused training modules can effectively drive the adoption of new processes while minimizing disruption to existing operations. These modules should address technical



aspects of AAR completion and the broader cultural shift toward viewing AARs as essential organizational learning and improvement tools.

- **Stakeholder Engagement:** Successful AAR implementation hinges on consistent stakeholder participation, yet methods for maintaining engagement require additional study (Stermann, 2000). Given DAF Contracting's history with mandatory AAR implementation, research into balancing inclusivity with efficiency could provide crucial insights for future program development.
- **Technical Integration and Innovation:** The rapid evolution of artificial intelligence (AI) and NLP tools presents significant opportunities for enhancing AAR processes. While Cates et al. (2022) introduced AI's potential in AAR analysis, comparative studies between manual and technologically enhanced approaches remain limited. As tools like ChatGPT become increasingly prevalent, research examining their effective integration into AAR processes could provide valuable insights for future implementation.
- **Long-Term Impact and Systems Analysis:** Longitudinal studies examining the temporal impacts of AARs represent a crucial research opportunity, particularly when enhanced by system dynamics approaches. While organizations like FEMA and USAID document immediate benefits from AAR data, understanding long-term effectiveness requires more sophisticated analytical tools. Future applications of CLDs could provide real-time simulation and data analysis capabilities, revealing critical feedback mechanisms within the system-of-systems framework.
- **Cross-Organizational Implementation:** AAR usage spans numerous organizations, yet comparative research on effectiveness across different contexts remains sparse. Notable gaps exist in understanding how AAR practices transfer between military and civilian organizations and their function across joint operations or multi-agency responses (Cates et al., 2022). Research into these dynamics proves especially relevant as DAF Contracting evolves within the AFFORGEN framework and as CCOs continue to be interwoven with joint operations.
- **Cultural and Behavioral Factors:** Organizational culture's influence on AAR effectiveness demands further exploration. There is a lack of comprehensive analysis regarding leadership styles' impact on AAR implementation and sustainability. Examining what drives AAR success in Air Force Contracting versus other military organizations like the Army might illuminate effective methods for motivating consistent participation across stakeholder groups (Messer, 2022).
- **Training and Development:** Research on best practices for developing AAR competencies is lacking despite available guidance on facilitation (Layland et al., 2020). Integrating AAR training into professional development programs requires deeper investigation, particularly within annual CCO training modules and capstone exercises. Analysis of training





effectiveness across organizational levels could yield valuable insights for program development.

- **Process Optimization:** Balancing standardization with flexibility across various operational contexts presents an ongoing challenge (Messer, 2022). Questions persist about optimal AAR timing and structure for different mission types, ranging from exercises to humanitarian response efforts. Additional research opportunities exist in exploring AAR integration with other performance improvement tools while preserving operational effectiveness (Finucane, 2022).
- **Knowledge Management:** Centralized AAR repositories play a crucial role, yet effective methods for storing and retrieving data need further exploration. The proliferation of cloud storage platforms, including Microsoft Teams and the Air Force Network, opens new possibilities for investigation. Researching optimal approaches for maintaining institutional knowledge through AAR systems could significantly enhance long-term effectiveness.

## B. LIMITATIONS

This section outlines the primary limitations encountered during this research, focusing on methodological and practical constraints that influenced the study's findings and scope. While the research provides valuable insights into the AAR process and its integration within the AFFORGEN framework, certain limitations restricted the depth and breadth of analysis. These limitations highlight areas where further investigation and expanded methodologies are needed to refine and validate the proposed solutions. Addressing these constraints in future studies will enhance the robustness and applicability of the AAR ecosystem.

- **Eliciting Operational Feedback:** The research team's inability to test the AAR template with recently deployed CCOs represents a significant limitation that should be addressed through continued stakeholder engagement. As Blank (2013) emphasizes, direct beneficiary feedback is essential for validating and refining solutions to ensure they meet operational needs. Future implementation efforts should prioritize gathering feedback from CCOs returning from deployments across various operational contexts. This feedback would provide valuable insights into the template's effectiveness, usability, and alignment with diverse mission requirements while identifying potential areas for refinement.
- **Limited Number of Interviews:** The research team interviewed 33 beneficiaries and key stakeholders, resulting in 82 touchpoints. While these interactions provided meaningful insights, the limited sample size reduced the diversity of perspectives, particularly across different operational and geographical contexts. Expanding stakeholder engagement





in future studies will reveal broader insights and uncover additional challenges and opportunities.

- **Time Constraints on MVP Development:** The team faced time limitations, which restricted the ability to fully develop initiatives such as the Project Mako AAR training module. Although conceptual placeholders represented these efforts, the absence of an operationalized model reduced opportunities to evaluate its practical application within the AFFORGEN cycle. Future studies should focus on piloting and fully operationalizing these concepts to assess their real-world impact.
- **Lack of Participation in CCO Training Exercises:** The research excluded participation in live exercises during CCO training and direct observation of AAR processes in operational environments due to time constraints. These limitations restricted the ability to gather firsthand insights into how the AAR template performs under realistic training and mission conditions. Observing and engaging in these scenarios would have provided valuable data on practical challenges, usability, and opportunities for refinement. Future research should prioritize embedding researchers in training events and operational contexts to directly evaluate the implementation of the AAR process. This approach will uncover critical insights into the template's effectiveness, identify implementation challenges, and inform process improvements to ensure the system aligns with real-world demands.
- **Scope of AI Tool Analysis:** This research included a proof-of-concept exploration of AI-driven analytics tools, such as Ask Sage and NIPR GPT, to assess their potential for enhancing decision-making and streamlining data analysis within the AAR framework. However, the study lacked access to a large dataset of real-world AARs, limiting the ability to test these tools in practical, operational scenarios. Without comprehensive testing using actual AARs, the full capabilities of these tools remain unverified. Future studies should prioritize accessing extensive datasets and conducting evaluations in controlled and operational environments. Testing with real-world AARs will help refine use cases, validate scalability, and ensure the tools' effectiveness in supporting readiness and continuous improvement.
- **Use of Free AI Tools:** One limitation of this research was the reliance on free versions of AI tools, such as Ask Sage, for the proof-of-concept. While these tools provided valuable insights, the functional constraints of the free versions, including potential feature restrictions and data security limitations, were not explored in depth. Additionally, the study did not evaluate the financial feasibility of acquiring individual or enterprise-wide licenses, leaving questions about scalability and long-term implementation unanswered.



## C. FUTURE RESEARCH

Building on these identified gaps, several promising areas emerge for future investigation. These opportunities span technical, organizational, and cultural dimensions, each offering the potential to further enhance the effectiveness of AARs across the enterprise. As the DAF adapts to emerging challenges and the AFFORGEN framework, pursuing these research opportunities becomes increasingly critical for maintaining operational effectiveness.

- **Further Stakeholder Exploration:** The initial scope of this research focused primarily on direct beneficiaries of the AAR system. However, the complex nature of the contracting enterprise suggests that additional stakeholders may significantly influence or benefit from AAR implementation. As Sterman (2000) emphasizes, complex organizational systems require an understanding of the interconnected roles and relationships that influence system effectiveness. Future research could expand stakeholder analysis to examine how various roles and organizational factors affect AAR utilization and effectiveness. Of particular interest is the impact of organizational culture on AAR adoption and sustainability. While this research identified risk-averse culture as a potential barrier, a deeper investigation into how different organizational mindsets influence AAR implementation could provide valuable insights for change management strategies. Understanding these dynamics could help develop more effective approaches for introducing and maintaining AAR systems across diverse organizational contexts. Key stakeholders warranting further exploration include FAMs and their role in AAR implementation within AFFORGEN, contracting commanders operating under the AFFORGEN model, and additional organizational roles that emerge through AFFORGEN implementation.
- **Exploration of Generative AI Capabilities:** The proof-of-concept testing of GPTs for AAR analysis represents the beginning of potential AI applications within the AAR ecosystem. As Cates et al. (2022) demonstrate in their FEMA research, AI tools can significantly enhance the ability to derive actionable insights from large datasets of after-action documentation. Future exploration should focus on developing custom models trained specifically on contracting terminology and operational contexts, with careful attention to security protocols and data handling requirements. These specialized models could provide a more nuanced analysis of AAR data while maintaining appropriate security protocols and operational security requirements (Belic & Stryker, 2024). The potential of GPTs extends beyond simple data analysis to transform how the contracting enterprise manages and leverages its collective operational experience. Fletcher et al. (2023) emphasize that technology should enhance rather than replace human judgment in operational analysis. This



further exploration of GPTs should be conducted in close partnership with Air Force cyber capabilities and information security experts to ensure all solutions meet DoD security requirements while maintaining operational data integrity. The goal is not just to automate existing processes but to unlock new possibilities for understanding and applying operational insights across the contracting enterprise.

#### **D. CONCLUSION**

This research has examined how DAF Contracting can optimize its AAR process to systematically capture, analyze, and apply operational insights that enhance mission performance in an evolving threat environment. Through stakeholder engagement and systematic investigation, the study developed practical solutions addressing the central research question while supporting broader strategic objectives outlined in the DAF Contracting Flight Plan.

To answer the central question—How can the AAR process be enhanced to systematically capture, analyze, and apply operational insights, thereby improving mission performance and fostering organizational learning?—the research team developed MVPs demonstrating systematic improvements. The standardized yet flexible AAR template facilitates the consistent and thorough capture of insights, while proof-of-concept text analysis capabilities offer efficient and actionable data analysis. Together, these tools create a robust framework for transforming lessons learned into meaningful organizational improvements.

This research provides comprehensive strategies to ensure successful implementation, including prioritizing operational feedback, empowering dedicated champions to drive adoption, centralizing data management, integrating targeted training modules, and exploring advanced AI-driven analytics tools. These combined efforts establish a holistic approach to optimizing the AAR process, enhancing mission performance, and advancing knowledge management across the enterprise.

As the Department of Defense navigates what Secretary Austin describes as a “decisive decade,” the ability to rapidly learn from operational experiences is more critical than ever (U.S. Department of Defense, 2024). The optimized AAR process offers a cost-effective, scalable solution for enhancing readiness and adaptability across the












contracting enterprise. However, success requires sustained leadership commitment and active stakeholder engagement at all levels.

The path forward includes implementing these recommendations, gathering continuous feedback, and adapting to emerging needs and capabilities. These efforts will enable DAF Contracting to better support the joint force in addressing current and future challenges, solidifying its role as a vital enabler of mission success. By transforming the AAR from an administrative task to a powerful tool for driving operational excellence and strategic advantage, this research highlights the critical role of structured learning and adaptation in achieving organizational goals.



## APPENDIX A: MISSION MODEL CANVAS EXAMPLE

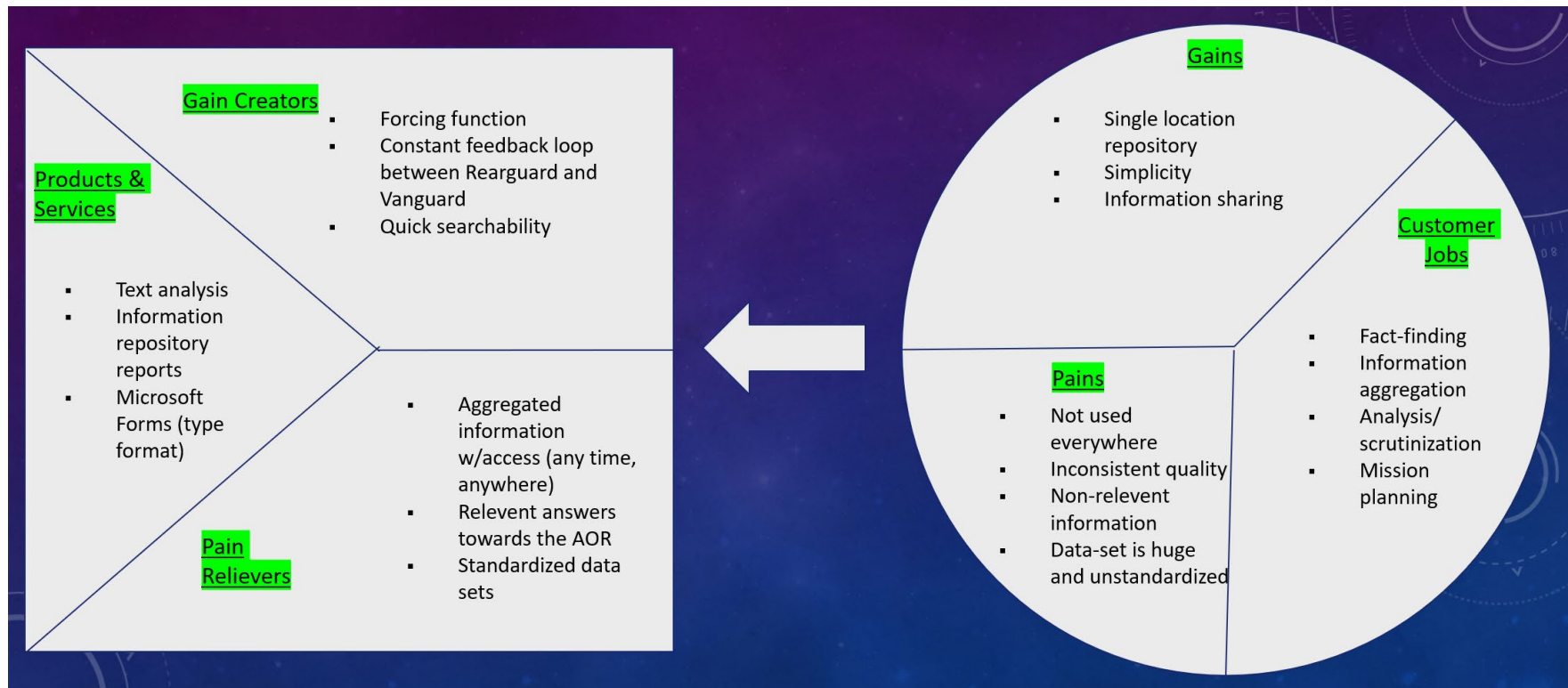
<b>Key Partners</b>  DAF Partners A4 – Logistics A5 – Plans & Requirements A9 – Studies, Analyses, Assessments & Lessons Learned Wing Commanders (AFFORGEN)  Contracting Enterprise SCOs AFICC/KQ	<b>Key Activities</b>  Capability of the below areas: Process Improvement Process Implementation Data Management/Mining Training & Development Mission/Function Integration  <b>Key Resources</b>  Human Capital – Data/AAR Managers MS Office – Word or Forms Data Repositories – Cloud or Teams Text/Audio/Video Analysis & Transcription Tools	<b>Value Propositions</b>  Provides data to CCOs to new (“Arctic”) locations Creating key decision-making points based on up-to-date business intelligence Training – Incorporating boots-on-the-ground data to align with contingency goals Market/Competitive Advantage – CCOs on the ground have the most current knowledge base Time – Shrinking slack time from deployment to sustained ops (Create clear links)	<b>Buy-in &amp; Support</b>  AFICC OL/CCs: Immediately AFICC FAMs: 10 days after mission Planners: As-needed Commanders (AFFORGEN): Phase X-dependent  <b>Deployment</b>  Successful deployment will require updated end user-friendly submission processes and higher-level user ease of data analysis. Adding accountability to enforce submission of quality AARs from (ask Col Lasch)	<b>Beneficiaries</b>  Future Ops Planners (FAM) Exercise & Mission Planners Contracting Squadrons CCOs & FOOs (under ACE)
<b>Mission Budget/Cost</b>  TBD (Time and Human Capital) Colors of Money (funding type, where would they come from and how long do we need them?) D&M (enterprise licenses), OCO funds (Who pays for BIZINT?)		<b>Mission Achievement/Impact Factors</b>  Feedback is used to continuously improve wings, units, and CCOs and inform strategic and operational decision-making and business intelligence Objectives -Increase in AAR utilization and accountability -Increase AAR quality submissions -Higher beneficiary ease-of-use and satisfaction -Increased rate of CPI initiatives -Decreased lead-time to establish contracting support -Integrate lessons learned to prep for AFFORGEN deployments -Indicators -Increased completion and utilization rates -Improvement tracking based on feedback Measurements -Increased AAR submissions from CCOs (establish baseline) -User surveys from CCO training, deployers, and AFICC staff -Decreased requirement for reach back support or ops lead-time		



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## APPENDIX B: VALUE PROPOSITION CANVAS EXAMPLE



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# APPENDIX C: AAR TEMPLATE

## DEPARTMENT OF THE AIR FORCE Contracting Functional After-Action Report

### I. INTRODUCTION

- A. **Event Name:** (e.g., Operation OCTAVE QUARTZ, Exercise PACIFIC SENTRY)  
**Report Date:**  
**Event Type:** (e.g., Open-the-base, Command Post Exercise, Contingency)  
**Event Location(s):**  
**Event Date(s):**  
**Contracting Organization:**
- B. **Point of Contact**  
**AAR POC(s):** (Name and Title)  
**Email Address(es):**
- C. **Executive Summary** (What are the most critical points or conclusions from this event that should be highlighted upfront?)

### II. OPERATIONAL INSIGHTS

- A. **General Description of Battle Rhythm/Operations Tempo** (What are some influencing factors, and how did they impact the mission? Were any adjustments needed, and why?)
- B. **Operating Location(s):** (Briefly describe your location(s). Why was the location optimal or challenging?)
- C. **Major Participants:** (Who were the key organizations and individuals involved, and what roles did they play in driving the event's outcomes? Describe unique internal or external processes and their impact on mission success.)
- D. **Challenges, Risks, or Mission Enhancements:** (Describe the key challenges faced, the risks identified and managed, and the solutions or enhancements implemented to address these issues and their impact on mission success.)
- **Key Challenges Encountered** (Were there challenges you encountered on your deployment that hindered mission accomplishment? What factors drove these challenges? How were they managed?)
  - **Identified Risks and How They Were Managed** (What were risks associated with the key challenges? How did you manage them?)
  - **Idle Time** (Where did significant periods of inactivity or delays occur? What factors, such as unique mission requirements, pre-deployment preparation, or planning, contributed to these? How were they managed or mitigated?)
  - **Mission Enhancements** (What solutions or mission enhancement efforts did you implement during your deployment?)

Page 1 of 3

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**DEPARTMENT OF THE AIR FORCE**  
**Contracting Functional After-Action Report**

**III. KEY LEARNINGS AND RECOMMENDATIONS**

- A. Successes and Accomplishments** *(What were the successes and accomplishments during this event, and how did they impact the mission?)*
- B. Lessons Learned** *(What lessons were learned, and how can they be applied to enhance future operations or deployments?)*
- C. Gaps and Areas for Improvement** *(What gaps or limitations were identified—such as resources, training, or planning—and what steps can be taken to improve these areas?)*
- D. Feedback for Planning Staff and SCO** *(What feedback do you have for the planning staff regarding mission-related decisions? What feedback do you have for the Senior Contracting Official (SCO) regarding communication and mission execution?)*
- E. Special Interest Item – BIZINT Utilization:** Did you use BIZINT while deployed? Was BIZINT used to support a deployed mission to help find vendors? Did you load new vendors into BIZINT during your deployment?

**IV. CONCLUSION**

- A. Ongoing Actions** *(Describe any ongoing actions you are passing on)*
- B. Supporting Documents** *(Attach any developed templates, updated organization charts, vendor lists or contacts, workload trackers, or other relevant documents that can assist in familiarizing future planners and deployers)*
- C. Additional Comments** *(Is there anything else that should be noted for future consideration?)*

**V. ACKNOWLEDGEMENTS**

**Description:** This section ensures that the appropriate personnel have reviewed and considered the AAR. Signatures confirm that the findings and recommendations have been acknowledged and will be acted upon as necessary.

**Deployed Flight or Squadron Leadership**

*Confirms review of the AAR and its findings*

**AFICC OL Representative**

*Confirms review of AAR and its findings with additional steps taken on developing an action plan based on the AAR recommendations*

**Follow-Up Review Date:** \_\_\_\_\_

*Scheduled date for AAR review to assess the progress of follow-up actions*

Page 2 of 3

<Classification Drop Down>



## Instructions for Completing the After-Action Report

**NOTE: Similar to the J&A template, the instructions must be manually removed from the completed and signed AAR once unit-level signatures have been obtained.**

### GENERAL GUIDELINES

- Complete the AAR promptly, either before leaving the event or soon after, while details are fresh and mission requirements allow
- Focus on actionable insights and recommendations tailored for future use
- Use clear, concise, and professional language
- Highlight successes, positive outcomes, areas for improvement, and specific examples

### TIPS FOR QUALITY RESPONSES

- Incorporate metrics and context to support recommendations
- Consider the needs of future readers when providing details
- Be honest and constructive in assessments
- Include sufficient detail for accuracy and reference

### COMMON PITFALLS TO AVOID

- Vague or general statements
- Personal opinions without supporting evidence
- Focusing only on problems without solutions
- Omitting important context
- Insufficient detail in key areas
- Missing documentation or attachments
- Incomplete contact information
- Delayed submission of the report
- Failure to adequately detail negative actions or interactions

### DETAILED INSTRUCTIONS BY SECTION

#### I. INTRODUCTION

##### 1. Event Name

- Provide the official operation or exercise name
- Include any relevant operation codes or designators

##### 2. Report Information

- Enter the current date as the Report Date
- Annotate the appropriate Event Type
- List all locations where activities took place
- Specify the start and end dates of the event
- Include the complete name of your contracting organization

##### 3. Point of Contact

- List primary and alternate POCs with full names and titles
- Use official email addresses
- Ensure contact information is current and accurate

##### 4. Executive Summary

- Write this section last
- Focus on significant findings and recommendations
- Limit to 3–5 key points and keep it concise (maximum 250 words)

#### II. OPERATIONAL INSIGHTS

##### 1. Battle Rhythm/Operations Tempo

- Describe the daily operational pace
- Document significant schedule changes
- Compare work schedules for the base and contractor personnel
- Explain factors that impacted operations

- Include specific examples (e.g., delivery schedules, VAT issues)

##### 2. Operating Location(s)

- Detail advantages and challenges at each location
- Explain how locations affected operations
- Include relevant facility or infrastructure details
- Note location-specific considerations for future operations
- Describe any off-site positions or supported locations

##### 3. Major Participants

- List key organizations in order of involvement
- Describe each participant's primary role
- Highlight successful collaborations
- Document coordination challenges

##### 4. Challenges, Risks, and Enhancements

- Describe challenges, their mission impact, and solutions applied
- Document periods of idle time and contributing factors
- Explain mitigation efforts for idle time, training, equipment, or coordination
- Detail improvements made during your rotation
- Detail enhancements (e.g., centralizing databases)
- Document results and note any follow-up needed

### III. KEY LEARNINGS AND RECOMMENDATIONS

#### 1. Successes and Accomplishments

- List significant achievements with metrics when possible
- Explain why these successes are significant
- Note conditions that contributed to mission success

#### 2. Lessons Learned

- Include both positive and negative lessons
- Explain how each lesson can be applied
- Prioritize lessons by importance

#### 3. Gaps and Areas for Improvement

- Identify specific shortfalls and suggest constructive solutions
- Include resource requirements and improvement timelines

#### 4. Planning Staff and SCO Feedback

- Provide actionable feedback focusing on process improvements
- Include specific outcomes or changes based on suggestions
- Use this section to address senior leaders who can enact changes

#### 5. BIZINT Usage

- Describe how BIZINT was used and updated
- Recommend improvements based on user experience

### IV. CONCLUSION

#### 1. Ongoing Actions

- List incomplete tasks with status, next steps, and responsible parties
- Include expected completion dates

#### 2. Supporting Documents

- Attach relevant documents or indicate their file location
- Ensure proper labeling and version control
- Explain the purpose of each document

#### 3. Additional Comments

- Include important details not covered elsewhere
- Focus on forward-looking insights
- Note emerging trends or concerns

### V. ACKNOWLEDGEMENTS

#### Review and Signatures

- Obtain appropriate signatures
- Schedule follow-up reviews as needed



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## APPENDIX D: ASK SAGE AAR SAMPLE REPORT

### Ask SAGE

**User:** Provide a synthesis of the attached AARs

**AI Output:** Synthesis Report of After Action Reports (AARs)

#### 1. Introduction

This synthesis report consolidates the findings from multiple After Action Reports (AARs) to provide a comprehensive overview of performance, challenges, and recommendations for future operations. The AARs reviewed cover various deployments and offer insights into improving operational efficiency and effectiveness.

#### 2. Key Findings

##### 2.1 Performance and Accomplishments

- **Essential Supplies Secured:** Despite heavy workloads and frequent issues, teams managed to secure essential supplies, though often delayed [9].
- **Minor Scheduling Adjustments:** Minor adjustments were made to improve scheduling for the most reliable vendors, enhancing overall mission reliability [9].

##### 2.2 Challenges and Issues

- **Overwhelming Workload:** Teams faced overwhelming workloads, which limited their ability to implement significant mission enhancements [9].
- **Resource Constraints:** Limited progress in some areas due to resource constraints, affecting the ability to fully address identified issues [4].
- **Vendor Non-Compliance:** Reports of vendor non-compliance were included, highlighting the need for better vendor management and compliance tracking [4].

##### 2.3 Recommendations for Future Operations

- **Training and Resource Planning:**
  - **BIZINT Training:** More initial training on BIZINT is recommended to ensure effective utilization during deployments [10].
  - **Quick Turn Training:** Regular Quick Turn training sessions for contracting teams to maintain readiness and efficiency [4].
- **Team Structure and Staffing:**
  - **Evaluate Team Structure:** Avoid overworking personnel by evaluating and possibly restructuring teams in high-tempo environments [4].
  - **Increase Staffing Levels:** Suggest increasing staffing levels to handle high-stress environments more effectively [12].



- **Vendor Management:**
  - **Structured Vendor Vetting:** Implement structured vendor vetting and compliance management processes [5].
  - **Contingency Vendor List:** Establish a contingency vendor list to ensure continuity in operations [12].
- **Integration with Logistics:**
  - **Closer Integration:** Closer integration with the logistics team during peak phases to reduce slack time and improve efficiency [6].
- **Mobile Solutions:**
  - **Rapid Contract Management:** Consider mobile solutions for rapid contract management to enhance flexibility and responsiveness [8].

## 2.4 Acknowledgement and Follow-Up

- **Review and Acknowledgement:** Appropriate personnel, including deployed flight or squadron leadership and AFICC OL representatives, have reviewed and acknowledged the findings and recommendations [2], [3], [4], [5], [6], [7], [8], [9], [10].
- **Scheduled Follow-Up:** A follow-up review date is scheduled to assess the progress of follow-up actions, ensuring that recommendations are implemented and reviewed for effectiveness [2], [3], [4], [5], [6], [7], [8], [9], [10].

## 3. Conclusion

The synthesis of the AARs highlights the critical areas for improvement in future deployments. Key recommendations focus on enhancing training, resource planning, team structure, vendor management, and integration with logistics. By addressing these areas, future operations can achieve greater efficiency and effectiveness, ensuring mission success even in high-stress environments.

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**User:** Were there any major outliers?

**AI Output:** Based on the synthesis of the After Action Reports (AARs), there were a few notable outliers that significantly impacted the overall findings. These outliers are instances where the performance, challenges, or recommendations deviated markedly from the general trends observed in the reports.

### Major Outliers

#### 1. Vendor Non-Compliance and Supply Chain Issues





- **Significant Vendor Failures:** One of the AARs highlighted frequent vendor failures and non-compliance, which were more severe compared to other reports. This led to multiple mission disruptions and required substantial effort to troubleshoot and manage [8].
- **Inconsistent Vendor Availability:** The lack of reliable vendors on short notice compounded the issues, making it difficult to secure alternative suppliers and maintain operational continuity [8].

## 2. Resource Constraints and Overwhelming Workload

- **Overwhelming Workload:** In several reports, the workload was described as overwhelming, but one report particularly emphasized the inability to implement any mission enhancements due to the sheer volume of work. This was a more extreme case compared to other reports where minor adjustments were still feasible [9].
- **Limited Progress Due to Resource Constraints:** Another report highlighted that limited progress was made in addressing identified issues due to significant resource constraints. This was a more pronounced problem compared to other reports where some progress was noted despite constraints [4].

## 3. Compliance and Fraud Risk

- **High Compliance and Fraud Risk:** One report placed a high emphasis on compliance and fraud risk, noting that continuous monitoring and ad-hoc adjustments were necessary but only marginally effective due to resource limitations. This level of risk management was more intensive compared to other reports [5].

### Summary of Outliers

Outlier Category	Description	Reference
Vendor Non-Compliance	Frequent vendor failures and non-compliance leading to mission disruptions	[8]
Inconsistent Vendor Availability	Difficulty in securing alternative suppliers on short notice	[8]
Overwhelming Workload	Inability to implement mission enhancements due to workload	[9]
Resource Constraints	Limited progress in addressing issues due to resource constraints	[4]



Outlier Category	Description	Reference
Compliance and Fraud Risk	High emphasis on compliance and fraud risk management	[5]

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### Conclusion

The major outliers identified in the AARs highlight specific areas where the challenges were more severe than the general trends observed. These outliers underscore the need for robust vendor management, adequate resource allocation, and effective risk management strategies to ensure mission success in future deployments. Addressing these outliers will be crucial for improving overall operational efficiency and effectiveness.

If you need further analysis or specific details on any of these outliers, please let me know!





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