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# Air Force Targeting Roadmap



## Reinvigorating Air Force Targeting

**“Targeting is the intersection of intelligence and operations”  
General Henry A. “Hap” Arnold**

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## Executive Summary

“The Air Force must rebuild its ability to select and prioritize targets so it can attack with precision munitions in a high-end air campaign.”

*Lt. Gen. Larry James, USAF  
Deputy Chief of Staff, Intelligence,  
Surveillance and Reconnaissance.*

Targeting is a core competency of the U.S. Air Force. However, the capability and capacity to adequately conduct deliberate planning and support air operations has atrophied. At the 2012 CORONA South conference, the senior leadership of the Air Force acknowledged that there is insufficient targeting capacity. The Secretary of the Air Force (SecAF) and Chief of Staff of the Air Force (CSAF) directed the development of this roadmap as part of a larger plan to reinvigorate Air Force targeting. The Air Force Targeting Roadmap (AFTRM) was developed to address long-standing issues within Air Force targeting related to a decreasing capability to provide effective and efficient targeting support. Combining the findings from numerous studies, the strategy and risks outlined in the Global Integrated Intelligence, Surveillance, and Reconnaissance Core Function Master Plan (GIISR CFMP), targeting related equities and concerns in the Command and Control, Global Precision Attack, Agile Combat System, Space Superiority, and Cyberspace Superiority CFMPs, and recent real-world events, stakeholders across the Air Force identified the most critical deficiencies to effective targeting support for Air Force Component warfighting operations. These deficiencies were grouped into five major focus areas: targeting requirements and production capacity; reachback and distributed operations; systems, tools and architectures; training; and force management. Those deficiencies, in turn, have associated short-, mid-, and long-term actions that must be taken to reinvigorate Air Force targeting and put our Service back on the path to effectively and efficiently employ airpower to support our nation’s security. Meeting the following objectives will address the identified deficiencies:

- Establish an efficient Air Force targeting requirements process and increase production capacity needed to support air component targeting requirements
- Enable efficient and reliable reachback and distributed operations
- Build a standardized, interoperable set of systems, tools and architecture
- Reinvigorate Air Force targeting through education and training
- Improve force management processes

The Air Force Targeting Roadmap provides fundamental guidance on how to better organize, train, equip, conduct, and manage our targeting and targeting-related personnel and resources to ensure efficient and effective targeting operations during peacetime, contingency, and war. Applying the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P)

construct to five focus areas, MAJCOM and staff participants developed 23 specific actions. The 23 actions and their 165 associated tasks will drive changes in target intelligence production standards; manpower levels (active duty, civilian, and Air Reserve Component (ARC)); identification of target production and services “Lanes in the Road” by specifying organizational roles and responsibilities; concepts of operations (CONOPS); tactics, techniques and procedures (TTP); improvements to the development, testing, and fielding of multi-domain intelligence systems which complement or contribute directly to USAF and Joint targeting; requirements for certain Air Force Specialty Codes (AFSCs); and training to develop an experienced targeting force and leadership.

Each of the five focus areas in this roadmap have a number of associated action items which are summarized below:

**To establish an efficient Air Force targeting requirements process and increase production capacity:** The U.S. Department of Defense (DoD) must clearly identify and prioritize targeting requirements to maximize production capacity. The Air Force must improve air component deliberate planning to clearly identify its targeting support requirements. Establishing streamlined processes and codifying requirements will enable efficient use of the Air Force’s targeting capacity. In addition, helping the joint targeting community develop target material and data standards and advocating adherence to those standards will allow for automated solutions increasing interoperability to improve efficiency and production capacity.

**To enable efficient and reliable reachback and distributed operations:** The Air Force will strive to strengthen decentralized execution capability by establishing processes and architectures to enable reachback and distributed operations. The full range of Air Force targeting capabilities, compatible architectures and defined processes must be identified, established, and exercised to ensure success during contingency and war time operations.

**To build a standardized, interoperable set of systems, tools and architecture:** The Air Force should invest in developing processes, systems, tools, architectures and resources across the entire spectrum of system acquisition to enable a distributed targeting enterprise capable of reachback and distributed operations. The desired materiel end-state for targeting is for the Air Force Targeting Enterprise (AFTE) to have a centrally managed development and deployment strategy that provides for the development, acquisition, testing, sustainment and modernization of targeting capabilities. Those capabilities will enable the Air Force to accelerate execution of the Joint Targeting Cycle described in Joint Publication 3-60 in a dynamic operational environment consisting of air, space and cyberspace domains. The development and deployment strategy should help ensure that command, control, communications, computers and intelligence (C4I) systems, weapon systems, munitions (kinetic and non-kinetic, lethal and non-lethal), computer network operations (CNO), and their life cycle programs fully integrate targeting-related equities, including intelligence mission data (IMD).

**To reinvigorate Air Force targeting education and training:** The Air Force will endeavor to develop a core of professional officer, enlisted and civilian targeteers through the appropriate education and training to ensure it has the expertise and experience to execute targeting operations. The training and education elements must be sufficient to initiate, mature, and sustain a professional, knowledgeable targeting and

targeting support cadre capable of planning and executing operations at all levels. While the reestablishment of an enlisted targeting AFSC has significantly improved the outlook for the state of Air Force targeting, further maturation of training courses, career development, and skill enhancement are necessary for both the officer and civilian career fields.

**To improve force management processes:** The Air Force will strive to improve and enforce force management processes to optimize Air Force targeting resources; develop and maintain Total Force and civilian targeting expertise; and ensure efficient management of a sustainable, scalable force. Recognizing that a majority of future Air Force targeting leadership may begin their careers at the unit level, effective force management is a key element in maturing and sustaining a professional targeting cadre consisting of subject matter experts (SME) capable of planning and executing operations at the operational unit, component, and joint level. Using an enterprise-wide approach to force management, in coordination with Major Command (MAJCOM) Functional Area Managers (FAM), the Air Force must integrate kinetic and non-kinetic capabilities (emphasis on space, cyberspace, and influence capabilities); improve training and education; and determine the appropriate allocation of targeting resources between Continental United States/outside the Continental United States (CONUS/OCONUS) locations and organic/reachback organizations.

Institutionalizing the processes and changes detailed in this roadmap and dedicating the appropriate resources to the mission, the Air Force will strive to revitalize Air Force targeting capabilities and ensure that the Air Force is ready to support Joint Forces and meet the wide range of future national security demands

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## Chapter 1: Introduction

“In the past, to our sorrow, we have had to relearn several times that targeting is a key element in both peacetime readiness and wartime effectiveness.”

*Maj Gen John B. Marks, Assistant Chief of Staff, Intelligence*

### **1.0. Purpose of the Air Force Targeting Roadmap**

The Air Force Targeting Roadmap provides the foundation to develop an action plan to revitalize Air Force targeting capability and ensure the Air Force is organized, trained and equipped to support Joint and Coalition Forces. This roadmap articulates Air Force senior leaders’ guidance to drive policy and resource decisions that achieve a robust, effective, and efficient Air Force targeting capability. The challenges and requirements in this roadmap were compiled from lessons identified, existing studies and reports, and organizational expertise across air, space, cyberspace domains<sup>1</sup>. This roadmap includes actions necessary to reinvigorate Air Force targeting as directed by the SecAF, the CSAF, and the 2012 CORONA South conference.

### **1.1. Background**

Post-conflict air targeting studies have occurred since the advent of airpower in the World War I. The central theme of every study is a need to systematically identify critical targets based on the wartime objectives. However, targeting capabilities usually atrophied between conflicts, thus degrading crisis/contingency planning and execution when most needed. In regards to the current and future military environments, recent targeting resource and capabilities studies have identified a wide range of gaps and challenges facing Air Force targeting. These studies have been further reinforced through operational and AF Scientific Advisory Board (AFSAB) activities. For instance, the 2012 annual Tactics Review Board and Weapons and Tactics Conference (TRB/WEPTAC) breakout session for air operations centers (AOCs) and the Operation Odyssey Dawn (OOD) Mission Area Working Group (MAWG) cited issues in regards to architecture, communication barriers and baseline standards. Additionally, the AFSAB analysis of “Munitions for the 2025+ Environment and Force Structure” indicates a greater need for holistic approaches to target defeat analysis, especially for hardened and hard to access targets. After compiling and analyzing the existing data, five major focus areas require attention to establish a successful Air Force Targeting Enterprise (AFTE): Targeting Requirements and Production Capacity; Reachback and Distributed Operations; Systems, Tools, and Architectures; Education and Training; and

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<sup>1</sup> “Airpower is the ability to project military power or influence through the control and exploitation of air, space, and cyber to achieve strategic, operational, or tactical objectives.” *AFDD 1, 14 Oct 2011*, page 11

Force Management. The roadmap uses the focus areas as the framework to develop a comprehensive package of actions to address long-standing issues related to decreased targeting capability within the Air Force. These actions set the foundation to reestablish targeting as a core capability organic to all relevant core functions within the Air Force, and to establish and maintain an AFTE able to meet the air component commanders targeting requirements in support of the Joint Force Commander (JFC).

## **1.2. The Air Force Targeting Enterprise**

The AFTE is not a taskable unit but an aggregation of the people, organizations, systems, processes and procedures that develop, plan, execute, assess, and support military operations with decision-quality target intelligence to include requisite target materials. The enterprise involves planning and programming activities that provide the authority, resources, development, acquisition, deployment, sustainment of capabilities and capacity in support of Service, Joint, and coalition operations.

## **1.3. Objectives of the Air Force Targeting Roadmap**

The roadmap establishes an enterprise approach to achieve a robust, effective, and efficient Air Force targeting capability to support the Joint Force. The roadmap has been designed to guide the resolution of five areas of existing targeting deficiencies within the AFTE and steer it towards an established governance structure, processes, and standards enabling future capabilities.

To this end, the roadmap has five major objectives. Each of these objectives has associated short-, mid-, and long-term actions to reinvigorate the AFTE. These objectives are:

- Establish an efficient Air Force targeting requirements process and increase production capacity needed to support air component targeting requirements
- Enable efficient and reliable reachback and distributed operations
- Build a standardized, interoperable set of systems, tools and architecture
- Reinvigorate Air Force targeting through education and training
- Improve force management processes

Organized around these five objectives, specific action items have been developed that address critical shortfalls associated with each focus area. By addressing these action items, the AFTE will attempt to resolve existing deficiencies and set the foundation for effective and efficient governance, processes, and standards enabling future capabilities. The following are broad actions associated with the five objectives:

### **1.3.1. Establish an efficient Air Force targeting requirements process and increase production capacity**

- Improve AF Component deliberate planning
- Develop air target materials to meet air component requirements to supplement combatant command (CCMD) target materials
- Influence and adhere to joint target intelligence standards
- Identify current and future required target intelligence capacity

- Address target-related education, training, and certification requirements
- Establish method to track personnel with target training/experience

### **1.3.2. Enable efficient and reliable reachback and distributed operations**

- Formalize the prioritization process for Air Force target intelligence production
- Establish a stable and interoperable architecture to support robust targeting reachback and distributed operations
- Strengthen full range of reachback and distributed targeting support processes
- Streamline interoperability with and provision of target intelligence production to allies and coalition partners
- Strengthen decentralized execution capability to support distributed targeting processes (e.g. Fighter, Bomber, Attack/ Reconnaissance Helicopter, Joint Terminal Attack Controller (JTAC), Joint Fires Observer (JFO), Forward Observer (FO), Coalition)

### **1.3.3. Build a standardized, interoperable set of systems, tools and architecture**

- Develop a responsive, fiscally-sound, and centrally managed targeting development and deployment strategy
- Build, manage and evolve a targeting common architecture that supports efficient and effective target development via new technology insertion and is agile and responsive to the warfighter
- Ensure interoperability for seamless data flow across enclaves to support unhindered and timely targeting planning, execution and assessment in air, space and cyberspace domains
- Advocate for and help establish data standards across the AFTE and Joint Services
- Enhance awareness and specific targeting requirements development within the Joint Capabilities Integration Development System (JCIDS)

### **1.3.4. Reinvigorate Air Force targeting education and training**

- Mature Air Force Target Intelligence training
- Increase level of targeting knowledge in disciplines/mission areas supporting targeting
- Improve courses and availability for professional development of the targeting cadre

### **1.3.5. Improve force management processes**

- Create and sustain active duty, ARC, and civilian targeting expertise
- Optimize Air Force targeting resources
- Create sustainable CONUS/OCONUS targeting billet structure
- Manage force to foster integration of kinetic/non-kinetic capabilities (emphasis on space and cyberspace and influence capabilities)
- Reestablish Air Force nuclear targeting expertise
- Create mechanism to seamlessly integrate a scalable ARC capability to meet expertise and surge targeting requirements

## **1.4. Roadmap Organization**

This roadmap articulates Air Force senior leadership's fundamental guidance on how to better organize, train, equip, conduct, and manage our targeting and targeting-related personnel and resources to ensure efficient and effective targeting operations during peacetime, contingency, and war. Specific action items were developed applying the DOTMLPF-P construct to the five focus areas. These actions will drive changes in target intelligence production standards; manpower levels (active duty, civilian, and ARC); organizational roles and responsibilities; CONOPS; TTP; improvements to the development, testing, and fielding of multi-domain intelligence systems which complement or contribute directly to USAF and Joint targeting; requirements for certain AFSCs; and training to develop an experienced targeting force and leadership.

The analyses and actions take a holistic view of the AFTE by focusing on the range of Air Force communities and activities that effect targeting, such as manpower and personnel; operations and planning; requirements for weapon/system acquisition and development; Air Force, Joint, and Intelligence Community (IC) ISR analysis, production, and collection operations; legal considerations; operational and tactical planning, employment and combat assessment. By institutionalizing the processes and changes detailed in this roadmap and dedicating the appropriate resources to the distributed targeting mission, the Air Force will strive to reinvigorate Air Force targeting capabilities and ensure the Service is ready to support the Joint Force.

## **1.5. Roadmap Development Process**

The AFTRM effort began as a task out of the 2011 SECAF ISR Review, "Develop and write an Air Force Targeting Roadmap to outline requirements to satisfy target folder development support to warfighters, including space and cyberspace target sets." Senior officer discussions at the 2012 CORONA South conference expanded the scope beyond target folder development to "set the direction to reinvigorate the AFTE to address unmet air, space and cyberspace targeting requirements." Air Combat Command, Director of Intelligence, Surveillance, and Reconnaissance (ACC/A2) was designated as the office of primary responsibility (OPR) for this action with oversight provided by Headquarters United States Air Force Intelligence Surveillance and Reconnaissance Targeting and GEOINT Capabilities Division (AF/A2CG), the Air Force targeting functional manager. The offices of collateral responsibility (OCRs) are all the Air Force organizations with targeting equities. Aggressive timelines and a significant amount of previous work in this area dictated an approach that built on past studies and findings from both service and joint perspectives.

Air Combat Command conducted preparatory video teleconferences (VTCs) with all the MAJCOMs and Air Force organizations with targeting equities seeking formal appointment of POCs that would be responsible for ensuring Air Operations Center (AOC) through MAJCOM staff participation in the targeting roadmap development and staffing. Formal kickoff for the Targeting Roadmap effort was an ACC/A2-hosted working group (WG) at Langley AFB, VA, in April 2012.

The WG created draft roadmap inputs based on five focus areas and previous targeting studies and documents validated by the stakeholder reviews. The draft then underwent action officer-level, formal

bottom-line and top-line coordination. The actions in the completed AFTRM dated 30 September, 2012, serve as the foundation for the follow-on Plan of Actions and Milestones (POA&M) which provides the targeting enterprise an actionable framework to achieve a robust, effective, and efficient targeting capability.

## Chapter 2: Targeting Requirements and Production Capacity

“Advanced key munitions and associated targeting capabilities and capacity to enable a more capable, integrated force in an advanced threat environment.”

*CFLI Strategic Guidance  
ACC Strategic Plan, Securing the High Ground, 2012*

### **2.0. Introduction**

Over the last 20 years, the Air Force experienced a significant decrease in target intelligence capacity. A number of contributing factors led to this result, including but not limited to: decreased emphasis on deliberate planning; demise of officer targeting career field; targeting billet migration to the joint community; narrowing of what are considered targeting skill sets; and lack of advocacy. As new capabilities emerge for Air Force planners to use in executing operations in air, space and cyberspace, the expertise to articulate target intelligence requirements and capacity to produce the materials to support force employment must keep pace. Chapter 2 outlines the problem, desired end state, and way ahead by detailing the root causes of and proposed solutions to AF targeting requirements and production capacity deficiencies.

### **2.1. Problem Statement**

The Air Force inadequately defined and documented targeting requirements and possesses insufficient target intelligence production capacity to effectively plan and execute across air, space, and cyberspace domains to meet precision engagement and global reach mission needs.

### **2.2. Desired End State**

Capacity to produce and maintain timely, accurate, relevant, and standardized target intelligence to encompass Target Systems Analysis (TSA) products, entity-level target development, associated target materials, and assessment products in support of air component commander operational requirements.

## **2.3. Root Causes**

### **2.3.1. Inadequate deliberate planning**

For potential contingencies and conflicts, the deliberate planning process is the basis for deriving target intelligence requirements. Key outputs of the planning process consist of Joint Force Commander (JFC) and Joint Force Air Component Commander (JFACC) objectives, guidance, and measures of effectiveness. The lack of adequate deliberate planning degrades the ability to define requirements which, in turn, impacts the maintenance of a stable qualified production capability.

Challenges arising from inadequate deliberate planning include:

- Planning guidance not being published to task supporting organizations (Greybeard Targeting Study (GBTS); Air Force Targeting Flight Plan (AFTFP))
- No production requirements derived from planning objectives (GBTS; Joint Targeting Cross-Functional Working Group (JTC-FWG); AFTFP)
- Lack of requirements decreases resources allocated to meet operation plan (OPLAN) requirements (GBTS; JTC-FWG; AFTFP)
- Supporting processes and architectures requirements not documented (J26 Joint Targeting Automation Study (JTAS))
- Essential tasks not documented (Air Force Targeting Roadmap Working Group (AFTRM WG))
- Inability to develop and execute meaningful exercise objectives (AFTRM WG)
- Space and cyberspace-related targeting requirements not defined (GBTS; J26 JTAS; JTC-FWG; AFTFP)
- Unable to determine if resident and Service targeting capacity is adequate to meet mission requirements (AFTRM WG)

### **2.3.2. Lack of enforced target intelligence standards**

The lack of standardized target intelligence processes and associated products and materials has a significant impact on target intelligence production organizations. Widely different requirements and formats produce an inordinate training burden and introduce significant quality control issues for production organizations that support more than one geographic command. Additionally, reachback organizations lose valuable production time while “retooling” production processes to meet the different standards present between the different combatant commands.

This lack of standards raises a number of challenges including:

- Reducing production capacity for reachback organizations supporting more than one combatant command, such as the Air Force Targeting Center (AFTC) (GBTS; Air Force Capabilities Planning and Analysis (AF CP&A); J26 JTAS)
- Hindering concurrent support to more than one combatant command at a time (J26 JTAS; GBTS)
- Deploying forces receiving disparate planning materials between theaters (AOC and units)

- Complicating production organization's systems architecture (J26 JTAS; GBTS)
- Requiring increased resources (manpower, training, and systems) to meet OPLAN production (GBTS; JTC-FWG)
- Impacting target supportability and interoperability assessments for acquisition programs (J26 JTAS; GBTS)

### **2.3.3. Current targeting production capacity unknown**

Many combatant commands are currently uncertain of their actual target material production capacity. This uncertainty stems from numerous joint reorganizations and shifting of targeting personnel to other duties, linked to a breakdown in the production management and requirements processes. Additionally, many production entities within the Air Force do not have an accurate baseline of the capacity resident within their organizations to produce target materials.

Challenges related to unknown or ill-defined production capacity include:

- Joint targeting infrastructure severely degraded (J26 JTAS; AFTFP)
- Service and joint production "lanes in the road" not defined and not enforced (AFTFP; GBTS)
- Lack of common standard to measure capacity across combatant commands (JTC-FWG)
- Degraded ability of staffs to derive OPLAN-based requirements (GBTS; JTC-FWG)
- Target development and assessment requirements associated with Space and Cyberspace operations, especially those conducted in special access program/special technical operations (SAP/STO) channels (Air Force Intelligence, Surveillance and Reconnaissance Agency (AFISRA); Air Force Space Command (AFSPC))
- Hard and deeply buried target (HDBT) characterization and vulnerability analysis solely reliant upon Intelligence Community (IC) resourcing that has not kept pace with HDBT growth/proliferation (Hard Target Munition Analysis of Alternatives (AoA) Study Plan)

### **2.3.4. Certification requirements**

Two specific skills in advanced stage entity level physical target development—Precise Point Mensuration (PPM) and Collateral Damage Estimation (CDE)—have Chairman, Joint Chiefs of Staff (CJCS)-mandated certification requirements. The training and certification for these capabilities, both for individuals (PPM and CDE) and associated work centers (PPM only), help mitigate the inherent strategic risk associated with these processes and products. To meet these necessary training and certification requirements, the AFTE is challenged to keep qualified personnel in assignments long enough to get a production return on training investment. As qualified personnel transition to other assignments, the enterprise spends time and resources to qualify new personnel.

Challenges associated with certification and recertification requirements include:

- Precise Point Mensuration certification is extremely difficult to maintain if the targeteer or imagery analyst is not assigned to a targeting function, which is a critical concern for deployments, or assigned to organizations that do not have a targeting production function (i.e., flying wings) (AFTFP; GBTS)

- Time consuming process for PPM recertification (Air Force Precise Point Production Program)
- Effective use of assets requires coding billet to ensure training and certification requirements are identified (GBTS; Eagle Look (EL) 2006)
- Loss of certification can significantly impact production capacity (AFTRM WG)
- National Security Agency (NSA) mandate for specific training/certifications impacts personnel access/work roles within tailored access operations (TAO)/regional operations center (ROC)
- Definition of Joint Terminal Attack Controller (JTAC), Joint Fires Observer (JFO), Forward Observer (FO), Combat Air Forces (CAF) platforms, and Joint or Coalition training/certification requirements in the targeting process supporting decentralized execution

### **2.3.5. No viable method to track personnel with target intelligence experience**

The foundation on which production capacity resides is a clearly identified pool of expertise which can be drawn upon to effectively produce target intelligence. To ensure that a capable pool exists requires a process to identify and assign personnel based on mission needs and required skill sets in addition to personnel that have the requisite training and experience to meet those needs.

Challenges to the ability to match people with the right skills to the organizations and billets requiring those skills include:

- Targeting activities are conducted by enlisted personnel across a variety of ISR and non-ISR AFSCs (AFTFP; EL 2006)
- The AF officer corps currently has no targeting AFSC nor effectively uses the existing special experience identifier (SEI) (AFTFP; GBTS)
- There is no method in use to identify civilians engaged in target-related ISR operations
- There is no method to track unique targeting skill sets (e.g., HDBT, nuclear, STO, SOF, space, cyberspace, etc.), experience (years in skill set), and associated training (AFTRM WG; Space and Cyber Intelligence Support WG, July 2012)

### **2.3.6. Lack of early authoritative intelligence engagement in acquisition process**

Inadequate intelligence engagement during capability analysis, research, development, and acquisition processes prior to Milestone B has resulted in intelligence issues and requirements being frequently ignored or not determined until development is too far along to change vector. Correspondingly, intelligence support has suffered by necessitated realignment of intelligence resources to meet unplanned acquisition requirements (e.g., JASSM, SDB, F-22, F-35). In essence, the level of intelligence resources needed to support these systems remains beyond the scope of the planned/Program Objective Memorandum (POM) and authorized intelligence budget, and are not identified within the system's life-cycle programs.

The challenges presented by a lack of early authoritative intelligence engagement in the acquisition process include:

- Unknown intelligence targeting and support (e.g., imagery, Geospatial Information and Services (GI&S), weaponeering tools, dedicated production staff, etc.) requirements
- Unknown target intelligence and support training requirements
- Delayed or degraded weapon systems for the warfighter

## **2.4. Actions**

The following actions are required to resolve the root causes that negatively impact the development of requirements for, and the maintenance of, an effective target intelligence capacity to meet operational requirements.

### **2.4.1. Improve Air Force Component deliberate planning**

- (Materiel) Air Force advocate for establishment of a standardized joint/multinational system architecture to support target intelligence processes (OPR: AF/A2; OCR[s]: AF/A6, AFMC).
- (Leadership) AFTC establish working relationships with organizations specializing in specific mission areas (i.e., HDBTs, offensive cyber, space-based assets, airdrop), and influence to ensure Air Force Component planners can access complete range of capabilities in support of deliberate planning (OPR: AFTC; OCR[s]: MAJCOMs, AF/A2C).
- (Personnel) Increase STO/SAP/special access required (SAR) accesses for target planning (OPR: MAJCOM/A2/A3/A5/A8; OCR: AF/A2C).
- (Personnel) Air Force advocate for increased analytical capability (physical, social and behavioral) to better enable targeting of individuals and influence of populations with both kinetic and non-kinetic means (OPR: AF/A3; OCR: AFISRA).
- (Policy) Air Force advocate publication of detailed Air Force planning guidance for all Joint Strategic Capability Plan (JSCP)-tasked plans to aid identification of targeting requirements (OPR:AF/A5; OCR: AF/A2/A3, MAJCOM/A2/A3/A5).
- (Policy) Air Force advocate for combatant command-directed plans to have a current Joint Target List (JTL) that covers all phases of the plan (OPR: AF/A3/5; OCR[s]: AF/A2C, MAJCOM/A2/A3/5).
- (Policy) Energize theater Air Force Component A3/A5 participation in theater planning process to define and document theater Air Force Component target intelligence requirements for air, space, cyberspace, influence, and airdrop activities (OPR: MAJCOM/A2; OCR: MAJCOM/A3/A5).
- (Policy) Air Force Components and AOC commanders establish a target system analysis requirement tailored to specific air component needs for all target systems identified by combatant commands or component commanders for Air Force Component production tasking when combatant command TSA production is not adequate/forthcoming. (OPR: AFTC; OCR[s]: MAJCOM/A2/A3/A5).
- (Policy) In concert with the previous bullet, Air Force should establish requisite policies and procedures with COCOMs and IC for the appropriate, direct, and prioritized intelligence support for AF component target system analysis and target material production. Recommend policy take the form of the “(U) Terms of Reference Agreement for National-

- level Target Materials Production Standards between the Joint Staff and the Defense Intelligence Agency and the National Imagery and Mapping Agency,” J2-0000-223-02, January 2002 (OPR: AF/A2C; OCR[s]: MAJCOMs)
- (Policy) Determine the standard target materials (graphics and/or products like HDBT vulnerability analysis or weapon of mass destruction (WMD) defeat plumeology graphics) required by Air Force component organizations for planning and execution (OPR: AF/A2C; OCR[s]: MAJCOMs).
  - (Policy) Coordinate between Joint Space Operations Center (JSpOC), AFCYBER/624OC, the combatant commands and other interested parties such as AFTC and National Air and Space Intelligence Center (NASIC) to clarify how to develop and nominate potential targets that could be engaged with space or cyberspace related capabilities (OPR: AFSPC; OCR[s]: AFISRA, NSA, AFTC).
  - (Policy) Evaluate requirement for standardized handbook for targeting processes and procedures supporting deliberate planning by the Air Force Doctrine Center (AFDC) in conjunction with the Air, Land, Sea, Agency (ALSA) and the joint community. (OPR[s]: AF/A2; OCR[s]: AF/A3, MAJCOM/A2/A3).
  - (Policy) Advocate for essential targeting tasks, to include space and cyberspace-related tasks, to be added to the Universal Joint Task List (UJTL) (OPR: AF/A2C; OCR[s]: AF/A2D, MAJCOMs, AFTC)

#### **2.4.2. Establish and adhere to target intelligence standards**

- (Organization, Policy) Air Force establish a targeting governance structure to advocate for and enforce target material production standards (OPR: AF/A2C).
- (Organization) AF designate the AFTC as the service’s centralized target material production management office for all target types (facilities, individuals, virtual, equipment, organizations) and engagement types (e.g., conventional, cyber, space, SOF, nuclear, etc.) (OPR: AF/A2; OCR[s]: ACC/A2, AFTC)
- (Policy) Air Force continue to engage with the Joint targeting community to develop and advocate consistent and enforceable target material standards that support vetting, validation, and force execution requirements (OPR: AF/A2C; OCR[s]: ACC, MAJCOM/A2/A3).
- (Policy) AFTC coordinate with AFSPC, AFSOC, and other Air Force organizations to determine Service positions on standards for entity-level advanced stage target development that supports employment of engagement types other than conventional munitions and provide feedback into joint standards (OPR: AFTC; OCR[s]: AF/A2C, MAJCOM A2/A3/A5 staffs).
- (Policy) Air Force enforce Intelligence Supportability Analysis (ISA) direction in current and revised AFI 63-101 for weapon systems/munitions acquisition programs, to include space and cyberspace programs, that could require targeting infrastructure and support to field and operate (OPR: SAF/AQ; OCR[s]: AFMC, AF/A2/ A9, AFGSC/A2, ACC/A2).

### **2.4.3. Identify current and future required target intelligence capacity**

- (Organization) Air Force conduct functional analysis based on OPLAN commitments/taskings and production standards to determine required targeting capacity across the force (i.e. units, AOCs, AFTC, NASIC). Must include kinetic and non-kinetic analysis and production requirements (OPR: AF/A2C; OCR[s]: AF/A9, MAJCOMs, AFISRA, AFTC).
- (Organization) Air Force conduct functional analysis to identify and baseline Service organizational targeting capabilities and capacities at the operational level. (i.e., AOCs, AFTC, NASIC). Must include kinetic and non-kinetic (to include specialized products such as HDBT models and vulnerability analysis, WMD defeat plumeology) analysis and production capacity (OPR: AF/A2C; OCR[s]: MAJCOMS).
- (Organization, Policy) Air Force establish targeting governance structure to define, advocate resourcing for, and enforce Air Force targeting production roles and responsibilities (OPR: AF/A2C; OCR: MAJCOMs).
- (Organization, Policy) Designate AFTC as Air Force focal point for Service target material production which supports vetting and validation requirements for facility targets (OPR: AF/A2; OCR[s]: AF/A3, ACC).
- (Organization, Policy) Determine most effective organizational alignment for AFTC to accomplish assigned roles and missions (OPR: AF/A2; OCR[s]: ACC, AF/A3).
- (Organization, Personnel) Air Force analyze proper force mixture of active duty, Guard/Reserve and civilian personnel to optimize production and services capacity across the AFTE (OPR: AF/A2D; OCR[s]: AF/A2C, National Guard Bureau (NGB), AFRC).
- (Organization, Policy) Formally establish and document Air Force target intelligence production responsibilities in appropriate Air Force instructions and Joint publications. (OPR: AF/A2C; OCR[s]: AFTC, MAJCOM/AF component A2/3).
- (Policy) AFSPC (with 14AF and 24AF) advocate to the applicable theater air components appropriate Target Development Nominations (TDNs) for entities which may be engaged with space or cyberspace capabilities to help meet the commander's objectives. (OPR: AFSPC; OCR[s]: 14AF, 24AF, AFTC).

### **2.4.4. Address target-related education, training, and certification requirements**

- (Organization, Training) Establish and/or designate appropriate organization to provide follow-on training to meet targeting education, training, and certification requirements (OPR: AF/A2D; OCR[s]: ACC, AFTC, AETC, AFSPC).
- (Training) Identify, codify, and implement specialized cyberspace, space, and other unique functional targeting types (e.g., nuclear, HDBT, WMD, SOF, STO, etc.) education and training required for targeting-related functions (OPR: AF/A2D; OCR[s]: AFSPC (14AF, 24AF), AFISRA, AFGSC, MAJCOM FAMS).
- (Personnel) Establish force management procedures to reduce inadvertent loss of critical targeting-related certifications through assignment/deployment process (OPR: AF/A2D; OCR: AFPC).

#### **2.4.5. Establish method to effectively track personnel with target training/experience**

- (Personnel, Policy) Air Force establish and enforce use of SEI or other method for civilians identified as meeting requirement—education, training, and experience—as a targeteer (OPR: AF/A2D; OCR: AFPC).
- (Personnel) Air Force determine if officer SEI is adequate to track personnel with targeting training and experience. Determine necessity to establish an officer or civilian AFSC or prefix for targeting (OPR: AF/A2D; OCR[s]: AF/A2C, AF/A3).
- (Personnel) Air Force determine means and way ahead to track specific targeting skill sets (e.g., conventional, HDBT, WMD, SOF, STO, space, cyberspace, etc.), level of experience in each skill set, and skill set training/education completed (OPR: AF/A2D; OCR[s]: AFPC, AF/A2C, AF/A3, MAJCOM A2/A3).

#### **2.4.6. Establish Appropriate Strategy to Address Pre-Milestone B Acquisition Engagement**

- (Policy) Advocate to the acquisition and intelligence communities to modify DoDD 5250.01 and DoDI 5000.02 to better integrate acquisition with intelligence from AoA forward throughout the system's lifecycle. (OPR: SAF/AQ; OCR: AF/A2)
- (Policy) Initiate actions to engage the Air Force Targeting and GEOINT Governance structure to advocate identified intelligence requirements (per associated draft charter) to system Research and Development (R&D)/Acquisition programs throughout the entire system R&D, acquisition, and life-cycle processes into the formal Air Force Requirements Oversight Council (AFROC) process for systems acquisition (OPR: AF/A2C; OCR[s]: MAJCOM A2/A3/A5/A8, AFTC, AFISRA).

## Chapter 3: Reachback and Distributed Operations

“Dealing with this operational environment demands fast, comprehensive awareness, strategic thinking, flexible planning, decentralized execution, rapid innovation, new partnerships, and an unprecedented emphasis on sharing information.”

- General C. Robert Kehler, USSTRATCOM Commander

### **3.0 Introduction**

ISR operations today and in the foreseeable future are based on the premise that much of what is defined as critical warfighting intelligence will be provided by organizations that are physically located outside the theater of operations. Joint and Air Force doctrine have codified reachback/distributed processes as key enablers for effective intelligence sharing. While the necessities and benefits of reachback, federated or distributed operations are fully accepted, there are also challenges that have limited their effectiveness, particularly for Air Force targeting. In fact, recent contingency operations have affirmed that Air Force targeting—(focused on the sharing of products, services, and applications provided)—is now highly dependent upon reachback and distributed architectures. Chapter 3 outlines the problem, desired end state, and way ahead by detailing the root causes and proposed solutions.

### **3.1. Problem Statement**

The Air Force lacks codified targeting processes, systems and enterprise-wide personnel management to successfully implement reachback and distributed targeting operations with the air component or larger combatant command.

### **3.2. Desired End State**

Targeting reachback and distributed operations that enable effective target planning and execution across air, space and cyberspace domains to meet Air Force precision engagement and global reach mission needs.

### **3.3. Root Causes**

**3.3.1. Requirements for Air Force target intelligence products lack a formalized management process for prioritization and tracking across multiple combatant commands and Air Force Components**

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 resulted in combatant commands assuming responsibility for target intelligence production. As a result, the Air Force refocused or eliminated most target intelligence production activities and billets away from what was then duplicative combatant command production and focused instead, on time-sensitive targeting in support of counterinsurgency (COIN) operations and low-level conflicts. Elimination of the targeteer specialty (officer and enlisted) and reallocation of targeting billets further diminished targeting expertise within the Air Force. Today, combatant command targeting capabilities have significantly atrophied and Air Force deliberate target development and production capability is significantly degraded. This degraded capability directly impacts the Air Force as it puts our ability to successfully plan and execute offensive operations in an anti-access/area denial (A2/AD) environment on a large scale at risk. Target intelligence analysis and production are facilitated through a collaborative effort in which information is rapidly and fully shared among geographically-dispersed organizations. In today's resource constrained environment, it is essential that oversight and authorities exist to ensure there is little to no duplication of effort and that all available resources are fully employed. At the national level, the Defense Intelligence Analysis Program (DIAP) establishes policy, procedures, and responsibilities for intelligence analysis and production. While effectively delineating broad ISR production across the combatant commands and IC, it does not adequately address the need to effectively manage target intelligence production that the Service analysis and production organizations are performing in support of service component roles. A process is required that apportions and prioritizes target intelligence production, while reducing duplicative analysis and production efforts at the same time.

Requirement prioritization challenges include:

- There is an absence of an Air Force-wide [targeting] requirement management system that ensures visibility of all target materiel production/products/requirements to the AFTE and single-source tasking/production of command validated requirements. This absence increases the potential for redundant/duplicative production amongst and even within production organizations. Too often the tasking process is point-to-point with no validation and or visibility beyond the requestor/producer. A cohesive AFTE should support enterprise-wide visibility, access and production of COCOM validated requirements (AFTFP; GBTS; Air Force Geospatial Intelligence (GEOINT) Management Roadmap (AFGMR)).
- No authorized "clearinghouse" similar to the Force Allocation Decision Model used by the Joint Functional Component Command for ISR (JFCC-ISR) to manage requirement submissions. In some cases, components do not know how to submit their requirements or which joint or Air Force organizations have a capability to satisfy their requirements (GBTS; AFTFP; JTC-FWG).
- No process established to prioritize competing production requirements across or within geographic theaters. On the larger scale, the IC and combatant commands generally focus limited deliberate targeting capacity on National Intelligence Priorities Framework (NIPF) priorities. Most low-level conflicts occur in countries that have no production priority. Service intelligence centers have surged to support targeting requirements for contingencies involving lower tier NIPF countries; however, this is done on an ad hoc basis. For target intelligence production supporting deliberate planning, there is no guidance that places one area of responsibility (AOR) above another for support. The AFTC is currently bridging the gap by creating targeting studies and execution-ready target materials in support of Air Force Component requirements for high priority planning. Still, there is no guidance to prioritize

production other than an internal prioritization schema covering a spectrum of conditions from troops-in-contact to exercise support (JTC-FWG; GBTS; FY 11 Air Force Targeting Capability Planning and Analysis (AF CP&A)).

- Within the joint community, J26 under the authorities specified in CJCSI 3370.01 and CJCSM 3314.01 has the authority to coordinate targeting support in support of combatant command requirements from across the national intelligence community and operational centers/agencies, as required. While the national community uses NIPF for general prioritization guidance, no such office or policy exists within the Air Force to address Air Force Component target intelligence requirements (GBTS; AFTFP; JTC-FWG).
- No guidance or mechanism to re-focus IC resources on countries that have low NIPF priority in support of air component priorities for AFTC production (NASIC).

Requirement tracking challenges include:

- Current production management systems and processes do not allow requesting organization insight into detailed status of AFTC-supported production requests (AF CP&A; J26 JTAS).
- Current systems do not adequately support producer organizations. Legacy tools, such as COLISEUM, are inadequate and have not evolved to meet Air Force specific intelligence production tracking (J26 JTAS; AFTFP; GBTS).

### **3.3.2. Target intelligence product dissemination hindered by interoperability issues between systems, architectures, and security domains to include allied and coalition networks**

Distributed operations are dependent on the capability to provide products to a customer and for customers to have the ability to ‘reach in’ to access products via a dissemination architecture that is interoperable, machine-to-machine (M2M), and on networks that meet warfighter needs (SECRET Internet Protocol Router Network (SIPRNET), Joint Worldwide Intelligence Communications System (JWICS), NSA, North Atlantic Treaty Organization (NATO), allied, etc.). The capability to share targeting products and information must extend to applications, databases, and communications protocols to ensure that all targeting information is compatible with work stations, file servers, and communications links throughout the AFTE, DoD, IC, coalition, and allied organizations.

Challenges affecting reachback and distributed operations dissemination organizations include:

- No interoperable dissemination architecture that links Air Force components and production organizations. Even when like applications do exist, different versions, often years apart, significantly complicate compatibility standards and dissemination (AFTFP; J26 JTAS; GBTS).
- Inadequate compatibility and interoperability with existing allied/coalition networks for dissemination of targeting-related data and products. Production centers that support components across multiple AORs face the reality of having to field and maintain numerous networks, databases and software applications, as well as deal with releasability, accreditation, and training requirements (AFTFP; J26 JTAS; GBTS).
- No defined interoperability standards for numerous systems used for target intelligence dissemination (GBTS; AF CP&A; J26 JTAS).

- No unclassified precision mapping database or precision coordinate production capability exists for field users and mobile field computing devices (AFSOC/A3).

### **3.3.3. Lack of adequate interoperable communication systems and bandwidth significantly limit quantity and timeliness of target intelligence reachback and distributed operations support**

Reachback and distributed operations support for targeting relies heavily on being able to effectively communicate requirements, clarify complex issues and share multiple sources of imagery and graphics-intensive data between the requesting customer and the reachback and distributed enterprise.

Challenges impacting effective reachback and distributed operations communications include:

- Producers and customers do not have common communication equipment and applications. Between VTCs, Tandbergs, Voice Over Internet Protocol (VOIPs), Secure Telephone Equipment (STEs), instant messenger, chat and other communications devices on Nonsecure Internet Protocol Router Network (NIPRNET), SIPRNET, and JWICS environments, different units, AOCs and Air Force Distributed Common Ground System (AF DCGS) sites have dissimilar communication equipment (AFTFP; J26 JTAS; GBTS).
- Multiple and varied theater communication configurations present prohibitive cost to reachback and distributed production organizations (AFTRM WG).
- Varying bandwidth capacity inhibits timely reachback and distributed support (AFTFP).

### **3.3.4. Classification policies enabling timely access to Air Force target intelligence production by allied and coalition partners are not readily accessible by Air Force production centers**

Air Force targeting supports the development of the commander's operational objectives by providing analysis, executable target options, target materials—such as target graphics, aimpoint production, CDE, weaponeering, combat assessment (CA)—and other target intelligence products and services that can be used at different classification levels and shared with multiple partners. However COCOM security policies and releasability considerations/processes are not readily available to Air Force target intelligence production organizations. This can negatively impact the timeliness of reachback and distributed production.

Security and releasability challenges that negatively impact the reachback and distributed operations support process include:

- Classification and declassification policies for target materials reside with the Foreign Disclosure Office (FDO) at component and combatant command organizations within AORs. Given the fiscal constraints and international nature of operations, most, if not all, future conflicts will involve foreign partners or coalition forces, thereby complicating targeting data and materials production and access.
- Specific data restrictions and releasability criteria to the level of detail required to support all targeting partners are not available to Air Force production organizations. FDOs quickly become saturated with intelligence products that need to be coordinated with the originator before release to a third party, to the point where it may take days for a deliberate strike to be authorized (GBTS, AFTTP, PACAF).

### **3.3.5. Reachback and distributed operations support processes are not adequately exercised between geographic theater organizations and Air Force production centers**

An architecture must be developed which allows data sharing for training and exercises in peacetime. Target intelligence systems, policies, procedures, connectivity, security, and fusion requirements must be part of joint training exercises and be incorporated into simulations. During exercises, capabilities must function exactly as in real operations, so that the users train in a realistic, seamless environment. A number of related challenges contribute to the fact that reachback and distributed operations support processes and systems designed to support real-world contingencies are not sufficiently exercised across the geographic theaters.

Specific issues related to the lack of adequate reachback and distributed operations support for exercise activities include:

- Inadequate documentation of reachback and distributed operations processes and requirements in theater OPLANs/concept plans (CONPLANs) (AFTFP; GBTS; AF CP&A).
- Inadequate documentation to the TTP/standard operating procedure (SOP) level (AFTFP; GBTS; AF CP&A).
- Lack of documentation and funding preclude effectively exercising reachback and distributed targeting TTPs or SOPs with supporting production centers (AFTRM WG).
- Reachback and distributed operations during exercises are often control cell-scripted due to complexity/cost, thus creating unrealistic or negative training (AFTRM WG).
- Inadequate identification of reachback and distributed support requirements (i.e., communications, standards, systems, bandwidth, access) (GBTS; AF CP&A; J26 JTAS).
- Exercise objectives for reachback and distributed operations and training are not adequately developed or executed. (AFTRM WG).

### **3.3.6. Inadequate or non-existent documentation of codified processes and procedures to support reachback and distributed liaison officer (LNO) operations**

Currently, there is a lack of codified processes and procedures to support LNO operations as they pertain to reachback and distributed operations. Targeting liaisons are essential for coordination between commands and among supporting and supported organizations. Because of the inherent complexities associated with targeting operations, an aggressive liaison effort is critical to developing and maintaining unity of effort. A robust liaison effort with sufficient communications is necessary to support the full range of operations to include planning, execution, and combat assessment. Reachback and distributed operations are most successful when LNOs are sent forward to represent reachback and distributed targeting capabilities, to coordinate information flows, and to resolve forward targeting issues in a timely manner. Recent real-world events/crises demonstrated that target intelligence production and reporting support capacity can be effectively supported from the rear by a dedicated and resourced support enterprise.

LNO operations are impacted by:

- Reachback and distributed operations LNO resources unit type codes (UTCs) not identified for deployment planning by either reachback and distributed operations centers or by the requesting AOC/Air Force Component (AFTFP).
- Lack of formally defined LNO responsibilities inhibits effective training for LNO responsibilities (AFTC).
- Targeting reachback and distributed LNO requirements not documented in OPLANs/CONPLANs/Exercise Plans (AFTFP; GBTS).
- Reachback and distributed LNO activities not adequately exercised (AFTFP; GBTS).
- No designated single reachback and distributed site to access full spectrum capability-based node LNOs (AFTFP; GBTS).
- Reachback and distributed operations are negatively impacted when requesting organizations (AOC, Air Force Component) use LNOs in generic augmentee duties instead of establishing communication and data access that enables more effective reachback and distributed operations (AFTRM WG).

### **3.3.7. Reachback and distributed support for combat assessment lacks standardized and codified procedures, access to information and training**

Historically, CA (battle damage assessment (BDA), munition effectiveness assessment (MEA), reattack recommendation and future targeting) is not practiced or performed until combat operations begin and CA becomes critical to the Air Tasking Order (ATO) targeting cycle and reattack recommendations. Due to the sheer volume and timeliness required for Phase I and II BDA (physical and functional assessment), CA has also been one of the functions that has lent itself to reachback and distributed operations. Reachback and distributed CA support is limited by a lack of or adherence to documented standard procedures, robust communications, access to critical information, and realistic training. There are potential capabilities in Air Force organizations with the capacity and expertise, such as NASIC and Air Force DCGS that may be capable of supporting this critical function.

Challenges that impact effective reachback and distributed operations support to CA include:

- Inadequate enforcement and lack of adherence to standardized procedures governing reachback and distributed support for CA (AFTFP; GBTS).
- Lack of an automated CA reporting application that is relevant to all combatant commands, accessible across the combatant commands and production centers, and interoperable within multiple dissemination architectures (AFTRM WG).
- Inadequate access to critical information by reachback and distributed support organizations outside the theater (GBTS).
- No Air Force designated centers of excellence for specific targeting reachback and distributed CA support (AFTFP; GBTS).
- Virtually non-existent training at the theater, service or unit-level for CA mission area (GBTS).
- Combatant command's reluctance to federate BDA outside the AOR (Vice Chairman Joint Chiefs of Staff (VCJCS) Joint Targeting Planning Order (PLANORD)).

- Inadequate BDA generation tools (reports, messages and imagery) for exercises (AFTRM WG).

### **3.3.8. Air Force target intelligence reachback and distributed organizations are inadequately manned, equipped, and trained to leverage National Tactical Integration (NTI) capabilities in support of deliberate planning and CA**

Air Force National Tactical Integration (AFNTI) program, managed by AFISRA, leverages signals intelligence (SIGINT) information and ISR capabilities for the Air Force Component AOCs, to include Air Expeditionary Forces (AEF), while also providing SIGINT expertise and insight on Air Force operations in air, space, and cyberspace. The AFTE provides targeting and geospatial support to the Air Force Component AOCs via reachback and distributed operations. To enable the AFTE to provide optimum support to Air Force Component AOCs in deliberative planning, crisis, and contingency operations, the AFTE requires access to national SIGINT via the Air Force NTI program.

Challenges associated with NTI support to targeting reachback and distributed activities include:

- Air Force Targeting Center not able to fully leverage NTI capabilities in a deliberate targeting role. (AFTC/DO).
- Air Force Targeting Center reachback and distributed access to SIGINT data and fusion/correlation (NCCT-like capability) are non-existent or limited and may require special compartment accesses and networks (AFTRM WG).
- The cyberspace domain is extremely dependent on SIGINT data to enable successful targeting. Many times, this SIGINT data is protected by cryptologic rules and regulations and, therefore, not able to be used in the initial steps of deliberate planning. In addition to these restrictions, sometimes the data does not exist at all due to priorities in collection at the national level (24AF).
- Through DMS (Distributed Mission Site), NASIC brings advanced geospatial intelligence and Measurement and Signatures Intelligence (MASINT) data into the DCGS enterprise. There are no current processes to leverage this data for targeting (AFMC).

### **3.3.9. Current Intelligence Community production priority processes inhibit Service fulfillment of deliberate production support for potential contingencies**

The AFTC provides wide ranging support from unit planning to requirements tracked and resourced in the NIPF, Defense Intelligence Priorities Framework (DIPF), or DIAP. While filling a critical deliberate planning need for the Air Force Component, the AFTC is not properly resourced to fulfill these requests and often may only be able to leverage IC support if the requirement receives combatant command validation or if the AFTC establishes a responsive IC collaboration channel. Where IC support is required, the funding and resource planning of the IC is constrained to a focus on high NIPF priorities, which in turn limits resources available for direction to targeting support for lower priority countries. This situation places deliberate planning for potential contingencies at risk and slows target intelligence production.

Existing process challenges that impact potential AFTE contingency planning support include:

- Intelligence Community collection and production are by currently funded, resourced, and constrained to a main focus on Tier 1/Priority 1 countries, leaving the most likely low-intensity conflict countries out of the combatant command's CONPLAN/OPLAN deliberate planning production process (GBTS).
- Intelligence Community collection priority is predominately allocated to Title 50 requirements vice Title 10 resulting in increased difficulty for effective non-kinetic operations (PACAF/A3).
- Support and resources for deliberate planning in other than Tier 1/Priority 1 countries are extremely limited which results in increased difficulty for precision engagement and increased risk (AFTRM WG).
- Collection, analysis and production resources are limited, particularly for non Tier 1/Priority 1 countries. Over time, our Air Force ability to effectively plan and engage adversarial forces in denied environments becomes more difficult (JTC-FWG; AFTFP; GBTS).

### **3.3.10. Non-kinetic capabilities not sufficiently integrated into targeting support documents and processes**

Kinetic engagement capabilities are well understood and have a large quantity of historical data on which to base planning and execution decisions. Cyber, space, electronic attack (EA), behavior influence analysis (BIA) and other non-kinetic engagement options are not fully understood and are difficult to integrate into a holistic reachback and distributed enterprise. This lack of understanding is best illustrated by the fact that targeting supporting compartmentalized, non-kinetic effects does not necessarily rely on SAP/STO data so targeting the space, cyberspace, or human factors element of a target system need not be conducted at a level above Sensitive Compartmented Information (SCI). However, most targeteers in conventional AOCs and units are under the impression that such non-kinetic targeting requires SAP/STO channels.

Issues impacting successful integration of non-kinetic/non-lethal capabilities into Air Force reachback and distributed operations include:

- At the planning and execution level, non-kinetic capabilities are not integrated with kinetic operations but are often presented as alternative options (JTC-FWG; AFTFP; GBTS; AF CP&A).
- Compartmentalization that does exist complicates unified reachback and distributed operations (JTC-FWG; AFTFP; GBTS).
- Lack of organic AFSPC and AFCYBER ISR support capabilities and infrastructure degrades targeting support (AFISRA; AFSPC).
- Lack of adequate quantitative, empirical data for non-kinetic capabilities (i.e., about networks, individuals, populations) inhibits accurate employment planning (i.e., cyber Joint Munitions Effectiveness Manual (JMEM), Information Operations (IO) JMEM) (JTC-FWG; GBTS; J26 JTAS; AF CP&A).
- Immature methodologies to conduct CA after non-kinetic capabilities are employed (JTC-FWG; AF CP&A).

- Lack of TTPs and doctrine to integrate kinetic and non-kinetic capabilities for deliberate planning (JTC-FWG).

### **3.3.11. Reachback and distributed support organizations have inadequate access to non-traditional ISR (NTISR) data**

Non-traditional ISR is the use of sensor systems that, while not primarily designed for ISR operations, can contribute vital information to the development of battle space awareness and increase Joint Force ability to conduct decisive operations. With the increasing sophistication of airborne sensors, many, if not all, aircraft can conduct reconnaissance or surveillance to varying degrees, even if intelligence collection is not their primary mission. Examples of non-traditional capabilities include weapon system video, full motion video, and electronic intelligence (ELINT) from a variety of non-ISR airborne platforms, Defensive Cyberspace Operations sensors (e.g., Information Operations Platform (IOP) and Host Base Security System (HBSS)), as well as on-orbit Space sensors like Space Based Infra Red System (SBIRS), traditionally used for Missile Warning/Missile Defense. Many reachback organizations or those with potential to contribute to the reachback and distributed enterprise in support of targeting do not have timely access to NTISR or an adequate understanding of how to use it in support of CA, system analysis, or mission planning.

Challenges contributing to this shortfall include:

- Lack of an NTISR system or architecture which results in reachback and distributed operations organizations being unable to effectively access NTISR in support of operations (AFGMR).
- Inadequate TTPs for use and exploitation of NTISR at tactical and operational levels (AFTRM WG).
- Inadequate understanding of NTISR capabilities in support of targeting-related mission areas (AFTRM WG).
- Inadequate understanding and formalization of Space/Cyberspace ISR Necessary and Enabling Capabilities for Air Force targeting. (AFSPC/A2)

### **3.3.12. Weapon system Foreign Military Sales (FMS) often create additional burdens on U.S. target intelligence production/training organizations**

Recipients of U.S. targeting-related technologies are sub-optimized for operations largely due to releasability and legal policies. This causes an increased burden on production/training organizations not resourced to support FMS activities.

Security and policy challenges include:

- Inadequate releasable precision guided munition (PGM) (i.e., Joint Air-to-Surface Standoff Missile (JASSM), Small Diameter Bomb (SDB)) support infrastructures and data for FMS. Targeting requirements (e.g., training, proprietary or restricted databases, associated coordinate derivation systems) are not considered when sales of U.S. PGMs are made to foreign partners. While the National Geospatial-Intelligence Agency (NGA) and the Air Force have begun to work specific funding issues, there are impacts to the AFTC's primary

mission. Foreign Military Sales training support must be contracted or provided with internal resources, releasability issues addressed, and Active Duty training requirements shuffled around FMS requirements (AFGMR).

- System incompatibilities exist between allied and Air Force targeting production organizations. Targeting support requirements have not been considered when FMS authorizes export of a precision munition (J26 JTAS; GBTS; AF CP&A).
- Data releasability policies impact training. While much of the foreign training responsibility is being tasked to the Air Force, ownership of data sources directly impacting training success or failure belongs to NGA and the Defense Intelligence Agency (DIA) (AFTRM WG).
- Limited AFTC resources diverted to support FMS are not available for Air Force targeting reachback and distributed operations (AFTRM WG).

### **3.3.13. Air Force reachback and distributed architecture/process for targeting support not coherently defined for supported organizations**

Many organizations have the capability to provide some level of reachback and distributed targeting support but they are widely dispersed across the Services, IC, and DoD. Air Force components do not always know how to access these capabilities. Additionally, the enabling and supporting organizations may not be postured to provide consistent and integrated targeting support.

Factors that contribute to this situation include:

- Multiple nodes are capable of providing niche reachback and distributed targeting support. Many organizations (AFTC, Joint Warfare Analysis Center (JWAC), NASIC, Targeting Weaponizing Assistance Cell (TWAC), Underground Facilities Analysis Center (UFAC), Hard Target Research and Analysis Center (HTRAC), Defense Threat Reduction Agency (DTRA), combatant commands, AOCs, and others) provide entity-level advanced stage target intelligence support for employment of conventional munitions. Additionally, several non-kinetic planning and engagement capabilities exist in more compartmented organizations, such as NSA, CYBERCOM, and STRATCOM (J26 JTAS; GBTS; AF CP&A).
- No coherent delineation of support responsibilities among potential producers. The DIAP assigns analytical responsibilities but not targeting support responsibilities (J26 JTAS; AFTFP; GBTS; AF CP&A).
- Unintentional duplicative production. Unlike collection management, there is no single forum to vet target intelligence requirements across the combatant commands or services (AFTRM WG).
- Target-related support capabilities not easily discoverable by potential customer community (GBTS).
- No Air Force process to efficiently leverage and manage existing reachback and distributed targeting production capabilities (AFTFP; GBTS; AF CP&A).

## **3.4. Actions**

The following actions must be implemented to address the spectrum of issues identified above. They are intended to create a robust and responsive reachback and distributed operations capability to support Air Force targeting activities at the Air Force Component in support of joint warfighting planning and operations. The following sections are identified using the Doctrine Organization Training Material Personnel Facilities and Leadership (DOTMLPF) construct to focus required resources.

#### **3.4.1. Formalize prioritization process for Air Force target intelligence production**

- (Materiel, Personnel, Policy) AF/A2 assess current national and joint targeting prioritization processes and identify the means to support deliberate planning on other than Tier 1/Priority 1 countries (OPR:AF/A2; OCR: MAJCOMs, J26, AFTC).
- (Policy) AF/A2 create a new Air Force target intelligence production/support prioritization process. As with the existing joint process the Air Force would only deconflict and prioritize AFTE production when a crisis or multiple crises overtax available targeting capacity. Air Force process should complement joint process described in CJCSI 3370.01 (OPR: AF/A2C; OCR[s]: MAJCOMs, J26).

#### **3.4.2. Establish a stable and interoperable architecture to support robust targeting reachback and distributed operations**

- (Organization, Policy) Determine most effective alignment for AFTC to accomplish assigned roles and missions (OPR: AF/A2; OCR[s]: ACC, AF/A3).
- (Organization) AFTC, Air Force Components, and Air Force distributed production partners identify number and desired level of command/locations for Air Force reachback and distributed LNOs (OPR: AFTC; OCR[s]: Air Force Components, 24 AF, 14 AF, AFISRA).
- (Organization, Personnel) Establish, source, and document LNO UTCs in OPLANs/CONPLANS/joint manning documents (JMDs) (OPR: AFTC; OCR[s]: MAJCOM A2/A3).
- (Training) Resource designated reachback and distributed organizations' participation in theater planning conferences/exercises (OPR ACC: OCR[s]: MAJCOMs, Air Force Components, AFISRA).
- (Training) MAJCOMs identify theater exercises appropriate to examine reachback and distributed processes to include TTPs, systems/communications architectures, collaboration and information sharing (OPR: ACC; OCR[s]: AFTC, MAJCOM A2/A3, AF/A2).
- (Training) Identify internal/external training requirements for designated targeting LNO positions (OPR: AFTC; OCR: Air Force Components).
- (Organization, Materiel) In response to documented requirement, AFMC establish Air Force Targeting and GEOINT Program Office to centralize management and execution of AFTE systems, tools and applications and establish formal coordination with appropriate C2 program offices (OPR: AFMC; OCR[s]: AF/A2C, ACC/A2).
- (Materiel) Targeting Steering Group (TSG) (within the proposed AFTE governance structure), in conjunction with AFMC, baseline automated targeting technologies/capabilities across the Air Force (OPR: AF/A2C; OCR[s]: AFMC, MAJCOMs).
- (Materiel) Air Force Components identify requirements for automated targeting processes/systems and coordinate with parent combatant commands for

standardized/interoperable solutions (OPR: AF/A2C; OCR[s]: MAJCOM A2/A3, AF Components, AFTC).

- (Materiel) Air Force components document reachback (e.g., conventional, HDBT, WMD, SOF, space, cyberspace, nuclear, etc.) and distributed communication requirements (bandwidth, networks, systems, applications, interoperability requirements) for each supported component in OPLANs/CONPLANS and Joint Air Operations Plans (JAOPs). (OPR[s]: Air Force Components; OCR: AFTC).
- (Materiel) AFMC investigate potential solutions for providing fused, correlated, and cross-cued near-real-time (NRT) multi-INT data, including national and theater SIGINT data, across security domains to support AFTE production (OPR: AFMC; OCR[s]: ACC/A2X, ACC/A2O, AFISRA)
- (Policy) Air Force Components document reachback and distributed interoperability requirements, to include allied coalition data sharing, in OPLANs/CONPLANS/JAOPs (OPR: AF/A3/5; OCR[s]: MAJCOMs, AF Components).
- (Policy) AF/A2 coordinate with DIA regarding updates to releasability and dissemination policies. Releasability of targeting information should be provided on a country-by-country basis so target material products can be produced in a releasable format instead of being sanitized after the fact (OPR: AF/A2C; OCR: DIA) .

### **3.4.3. Strengthen full range of reachback and distributed targeting support processes**

- (Organization, Training, Materiel, Personnel, Policy) Air Force develop a phased plan to integrate kinetic and non-kinetic capabilities and skill sets into the target development process in support of theater operational plans (OPR: AF/A2C; OCR[s]: AF/A3/5, MAJCOMs, AFISRA and NSA).
- (Organization, Material, Personnel) Evaluate utility, required locations, and support integrating NTI and SIGINT fusion capabilities into reachback and distributed operations elements of AFTE (OPR: AFISRA; OCR[s]: AF/A2, MAJCOMs).
- (Organization, Policy) Evaluate requirement for NTISR at Air Force reachback and distributed organizations to support CA mission area. If requirement exists, determine DOTMLPF-P implications to ensure timely receipt and use of NTISR at Air Force reachback and distributed nodes (OPR: ACC; OCR[s]: MAJCOM/ Air Force Components).
- (Organization, Training, Materiel, Personnel) Air Force assess capabilities of processing, exploitation and dissemination (PED) organizations (AF DCGS) to support target intelligence production (OPR: AFISRA; OCR[s]: ACC A2/A3, AFTC).
- (Organization, Training, Materiel, Personnel) AF assess capabilities of PED organizations (e.g., AF DCGS, NASIC, etc.) to support Phase I and II BDA during contingency operations. If applicable, determine appropriate types of targets and/or mission areas such as interdiction and offensive counter air, to include in theater reachback and distributed architecture planning (OPR: AFISRA; OCR[s]: ACC A2/A3, AFTC).
- (Organization, Training) Air Force determine BDA simulation tool fielding and deployment schedule and organizational responsibilities for supporting material production for AF component training/exercise requirements (OPR: AF/A2C; OCR[s]: AFMC, ACC, AFTC, AFISRA).

- (Organization, Training, Materiel, Personnel) In concert with previous task, Air Force assess capabilities of intelligence operational and production organizations to support component level combat assessment (Phase 1, 2, & 3 BDA, MEA, etc.) during contingency operations. If applicable, determine appropriate types of targets and or mission areas, such as interdiction, offensive counter air, to include in theater reachback and distributed architecture planning (OPR: AFTC; OCR[s]: ACC, AFISRA, C-NAFs).
- (Organization, Personnel, Training) Air Force assess imagery requirements for deliberate and dynamic targeting at the AOCs and identify the means to support AOC imagery requirements with a dedicated core of the targeteer Air Force Specialty Code. (OPR: AF/A2; OCR[s]: AF/A3, MAJCOMs, AF Components)
- (Training, Leadership) In accordance with AFI 36-2201, review tasks and skills delineated in training standards for needed improvement on roles, capabilities, and responsibilities of potential reachback and distributed production organizations and processes. (OPR: AF/A2D; OCR: AF/A2C).
- (Training) Develop training in response to stated training requirements from the AFTE for operations and intelligence disciplines to enhance employment of non-kinetic capabilities (OPR: AF/A2D; OCR[s]: MAJCOMs).
- (Training) Upon release of draft joint BDA guidance document, AFTC work with AOCs, AF ISR Agency units and Joint Task Forces (JTFs) to exercise joint BDA processes according to joint standards. (OPR: AFTC; OCR[s]: MAJCOM air components, AF ISR Agency units).
- (Training) Exercise employment of integrated kinetic and non-kinetic capabilities in Air Force /Joint exercises and experiments in the air, space and cyberspace domains (OPR: ACC; OCR[s]: MAJCOMs).
- (Materiel) Continue advocacy for development and resourcing of OSD's IO JMEM and other tools to enhance accurate assessment of non-kinetic effects (CDE/Collateral Effects Estimation (CEE), BDA, second/third order effects) (OPR: AFTC; OCR[s]: Air Force Components, AFISRA).
- (Materiel) Continue advocacy for development of Airdrop JMEM and other tools to enhance accurate assessment of kinetic airdrop damage estimation (ADE) (OPR: AF/A2C; OCR[s]: AMC, J26).
- (Materiel, Policy) Air Force nominate desired effects fields for inclusion into United States Message Text Format (USMTF) for ATO and work with C2 community to ensure fields are automatically populated and included in ATO (OPR: AF/A2C OCR[s]: MAJCOMs, AFMC).
- (Materiel) Air Force develop realistic BDA simulation tool for Air Force and joint training/exercises (OPR: AFMC; OCR[s]: AF/A2, AF/A9, ACC/A9, Air Force Agency for Modeling and Simulation (AFAMS)).
- (Leadership, Policy) Air Force engage Joint Staff to reinvigorate a robust deliberate planning process through JSCP direction (OPR: AF/A5; OCR[s]: AF/A2/3).
- (Leadership, Policy) Air Force advocate for consolidated Air Force Component target intelligence needs to combatant commands at Military Targeting Committee (MTC) (OPR: AF/A2C; OCR[s]: AF/A3/5, Air Force Components, AFTC).

- (Personnel) Assign aircrew rated personnel with air to ground experience to the AFTC and other production/reachback organizations to provide necessary operational input on deliberate planning, and expertise on operational TTPs (OPR: AF/A3; OCR[s]: ACC, AFISRA).
- (Policy) Codify and formalize AFTC role in target-related production in appropriate AF policy documentation (OPR: AF/A2 OCRs: AFTC, Air Force components).
- (Policy) Air Force define and establish streamlined process to utilize/activate ARC units/personnel to support target material production (OPR: AF/A2D; OCR[s]: AF/A2C, AFISRA, ACC A2, AFTC, NGB/A2, AFRC/A2).
- (Policy) Advocate for establishment of standards for non-kinetic CDE/CEE and CA (reporting standards, format standards, effectiveness standards [JMEM-like] (OPR: AF/A2C; OCR[s]: MAJCOMs, J26).
- (Policy) Air Force work with JS/J26 to establish BDA standards in the draft CJCSI 3162 and update reporting formats in Mil-Std-6040B, USMTF. Policy must include standardized tracking procedures, plain text reporting standards, required data, and reporting level (i.e., JDPI, element, facility) (OPR: AF/A2C; OCR[s]: MAJCOMs).
- (Policy) AFSPC, in coordination with AFTC and AFISRA, develop a formal Air Force targeting enabling concept that integrates Space and Cyberspace capabilities in order to establish a common understanding of and lay the foundation for future targeting capability development that addresses all cross-domain warfighting equities for targeting (OPR: AFSPC; OCR[s]: ACC, AFTC, AFISRA).
- (Policy) Codify and formalize guidance on targeting roles and responsibilities with functional (e.g., USSTRATCOM, JFCC-Space, and JSPOC) and regional interests in Space (e.g., Geographic COCOMs and Geographic AOCs) as well as between Air Force organizations (e.g., NASIC, 614 AOC and AFTC) supporting joint warfighters. (OPR: AF/A2; OCR[s]: AFSPC/A2, AFISRA, ACC, AFTC).

#### **3.4.4. Streamline interoperability with and provision of target intelligence production to allies and coalition partners**

- (Organization, Personnel) AF/A2 assess feasibility/requirement of foreign disclosure officer (FDO) presence at AFTC and/or other Air Force target material (TM) production organizations (OPR: AF/A2C; OCR[s]: AFTC, AFISRA).
- (Policy) Air Force coordinate with DIA to create foreign disclosure guidance as appropriate for lower echelons as it pertains to target materials production (OPR: AF A3/5; OCR[s]: AF/A2, SAF/IA, Joint Staff, DIA).
- (Policy) Coordinate with combatant commands to ensure their security policies and releasability considerations/processes readily available to Air Force target intelligence production organizations to enable production at releasable levels to increase timeliness of dissemination to allies and coalition partners (OPR[s]: Air Force Components; OCR[s]: AF/A2C, Joint Staff, MTC).
- (Policy) AFTC submit production request to DIA/NGA to produce country-by-country standard data/metadata releasability reference guide for TM products (OPR: AFTC).

## Chapter 4: Systems, Tools, and Architectures

“Along with quality people, US forces have long depended on the force multiplier effects and competitive advantages of advanced technology to provide the maximum warfighting potential”

*Donald Rice,  
Secretary of the Air Force*

### **4.0. Introduction**

Since the Gulf War, most particularly within the post 9/11 operational environment, targeting requirements and demand for effective capabilities have evolved at an accelerating pace. Yet, materiel development in support of targeting operations across joint, air, space and cyberspace domains is plagued by the absence of an overall centralized acquisition management approach, resulting in the lack of a fully developed DoD development and deployment strategy, a vision for a joint targeting architecture in a secure environment, a defined requirements process, and an integrated planning, programming and budgeting approach in a severely fiscally constrained era. An overarching vision and achievable end state for managing and solving systems related shortfalls in Air Force targeting does not exist. This has resulted in a proliferation of systems that are not interoperable and fail to meet air component internal needs or cannot effectively integrate Air Force operations with joint and allied forces. Chapter 4 outlines the problem, desired end state, and way ahead by detailing the root causes and proposed solutions for these challenges.

### **4.1. Problem Statement**

Current targeting development and deployment strategies, system architectures and requirements development processes limit effective and timely target intelligence support to mission planning and execution.

### **4.2. Desired End State**

A centrally managed development and deployment strategy that enables development, acquisition, testing, sustainment and modernization of targeting capabilities which supports joint air components.

The following six elements will enable integrated joint service execution while providing long-term acquisition guidance to create the desired end state.

**4.2.1. A responsive and fiscally-sound development and deployment strategy capable of providing flexible and responsive capabilities to the AFTE characterized by:**

- A holistic approach including air, space and cyberspace domains
- A roadmap for modernization through sustainment integrated with stakeholders
- New technology insertion through flexibility to an emerging operational environment
- Responsive to warfighter needs
- Integration with C2 community
- Integration of Intelligence Mission Data into acquisition programs that enable the targeting mission

#### **4.2.2. An Air Force full spectrum targeting common architecture and capabilities portfolio that enables agility and responsiveness to the Warfighter**

The AFTE, comprised of all the stakeholders in targeting operations, will define, develop, test, field and sustain a full spectrum (kinetic and non-kinetic across all phases of military operations (Phase 0-5)) targeting common computing environment with common user interface and visualizations characterized by:

- A dynamically extensible, composable, and fully integrated application toolset
- An ability to readily incorporate new and evolutionary technology
- Global reach through common log-ins and remote repair capabilities
- Streamlined information assurance and segmented testing procedures
- Full application-to-application (A2A) and machine-to-machine (M2M) data transfer

#### **4.2.3. Interoperability providing for seamless data flow to enable unhindered and timely targeting support to planning, execution and assessment across air, space and cyberspace domains**

The AFTE will identify and the GEOINT and Targeting Program Office will track and manage data, systems and organizational interdependencies across the enterprise to ensure interoperability between all elements, internal and external to the AFTE, to minimize risk as capabilities evolve.

Interoperability within the AFTE will be characterized by:

- Multi-level security system that is software based
- Defined security and releasability filters
- Integration with C2 capabilities
- Full A2A and M2M data transfer

#### **4.2.4. Data standards to fully achieve application-to-application and machine-to-machine data transfer**

The AFTE will identify, manage, evolve and enforce data standards in response to emerging technologies, policies and TTPs across targeting operations.

These standards will be characterized by:

- Incorporating Air Force, joint, allied, and coalition data requirements
- Evolving as a result of technology innovation and dynamic operational environments

- Ability to access multiple databases with a single search
- Data tagging and release filter capabilities
- A2A and M2M data transfer

#### **4.2.5. Modeling and simulation capabilities to support targeting training and operations**

The AFTE will identify requirements for modeling and simulation capabilities (M&S) that will support targeting training and operations across all domains.

The modeling and simulation capabilities will be characterized by:

- Train as we fight
- An automated means for nodal analysis
- Predictive capabilities to determine effects particularly in space and cyberspace domains, as well as targets with little to no visible post-strike weapon impact signatures (i.e., HDBT, hardened comms, etc.)

#### **4.2.6. Fully integrated Space and Cyberspace domains into targeting operations**

Once achieved, the above elements will ultimately ensure full integration of space and cyberspace domains into targeting operations. The AFTE will develop capabilities that support targeting operations seamlessly across domains and associated information environments, and will include all the characteristics identified above with emphasis on:

- Non-kinetic effects synchronized with larger targeting strategy and published in an Integrated Tasking Order (ITO)
- Automated visualizations with filters to enable strategy-to-task analysis across domains
- Integration with the greater AFTE and C2 community architectures and software portfolios

### **4.3. Root Causes**

#### **4.3.1. Emergence of targeting capabilities through non-traditional acquisition processes**

Over the past decade of warfare, various services, Combat Support Agencies (CSAs) and Combatant Commands have pushed the rapid acquisition of key warfighting capabilities to enable our forces to better conduct operations. We have done this without consideration of an overall AFTE strategy. Currently, the Air Force employs targeting capabilities developed, maintained and managed by a variety of organizations ranging from the Air Staff to ACC to AFRL and outside the acquisition lifecycle management process. The outcome has been a mixed bag of targeting capabilities with no defined common infrastructure or AFTE vision for the future of targeting operations. Many of these capabilities use funding and development and deployment strategies outside the normal DoD acquisition process. As a result, needed capabilities are currently fielded using non-sustainable strategies such as Overseas Contingency Operations funding. Further complicating targeting acquisition is insufficient advocacy for funding. Many targeting-related systems and applications are ‘held hostage’ to the fielding, funding and development schedules of other programs.

Emergence of targeting capabilities through non-traditional acquisition means has created challenges:

- Multiple funding lines with no cohesive planning, programming and budgeting strategy (AFTRM WG)
- No united development and deployment strategy/vision for AFTE capabilities across air, space and cyberspace domains (AFTRM WG)
- Redundant research and development activities for similar capabilities (AFTRM WG)
- Complex supportability and sustainability issues (AFTRM WG)
- “Local solutions” that are not sustainable (GBTS)

#### **4.3.2. Lack of centralized Air Force management for targeting and targeting related capabilities**

Few single issues impact the AFTE more than the lack of centralized acquisition life cycle management to develop, acquire, test, sustain and modernize targeting capabilities. Lack of centralized acquisition life cycle management has resulted in an overall system architecture and configuration that are disjointed with broken data flows and lack of M2M and A2A data transfer that then require extensive manual operations to exchange information between systems.

The lack of centralized acquisition life cycle management for targeting has created challenges which include:

- No single Air Force voice to vet, validate and prioritize targeting requirements and resources (AFTFP; GBTS)
- Lack of integration with C2 capabilities (AFTRM WG)
- Lack of full integration with space and cyberspace domains (AFTRM WG)
- Multiple versions of system/applications residing at strategic to tactical levels (Combatant Command down to units) (J26 JTAS; GBTS; AF CP&A)
- Disjointed architectures hindering interoperability as well as A2A and M2M information transfer (AFTRM WG)

#### **4.3.3. Lack of an Air Force full spectrum targeting common architecture**

At the present, full spectrum (kinetic and non-kinetic) targeting does not have a vision for a common computing environment with common user interface and visualizations. This is in part due to lack of centralized acquisition management and in part due to ill-defined Air Force targeting doctrine, processes, organizational structure, and training standards. Consequently, there is redundancy in development activities. For example, every targeting capability fielded has had to develop its own user interface. The ability of the AFTE to provide capabilities quickly to an emerging situation is limited and thus causes the development of locally derived solutions. Lack of a common architecture also slows the testing and accreditation processes. Rather than testing by exception, the entire capability has to be tested each time. Without a common architecture, targeteers have multiple log-ins to access necessary data, which significantly slow the Target Development and Battle Damage Assessment processes.

The lack of targeting common architecture presents many challenges, they include:

- Inability to accelerate the targeting cycle (AFTRM WG)

- Inability to insert new technology quickly (AFTRM WG)
- Redundant development activities (AFTRM WG)
- Lack of A2A and M2M information exchange (J26 JTAS; GBTS; AF CP&A)
- Cumbersome information assurance processes (AFTRM WG)
- Slow Target Development and BDA operations (AFTRM WG)
- Limited reachback capabilities (J26 JTAS; AFTFP; GBTS; AF CP&A)
- Increased manpower requirements (GBTS)
- Inhibited interoperability (J26 JTAS; GBTS; AF CP&A)

#### **4.3.4 Lack of a multi-level security solution that ensures interoperability across Air Force, Joint, Interagency, allied, and coalition environments**

The AFTE does not have a multi-level security system solution that enables targeteers to readily access and move information across enclaves (i.e., NIPRNET, SIPRNET, JWICS, STONEGHOST, allied and coalition, SAP/SAR, between services and agencies). As a result, M2M information transfer is limited and often requires manual data entry and data compilation into Microsoft Office products. This is due to a lack of centralized acquisition management and ill-defined Air Force targeting doctrine, processes, organizational structure and training standards. There is also a lack of transparency due to security classification in planning, execution and CA across intelligence and operations communities. This lack of transparency results in an inability to deconflict operations, limits trust, and inhibits accurate operational assessments. This mostly affects space and cyberspace communities who do not have an automated means to move relevant operational information to C2 capabilities to integrate their planned effects into the ATO.

The lack of a multi-level security system presents many challenges to include:

- Gap between intelligence and operations planning, execution and CA (AFTRM WG)
- Inhibited information sharing and collaboration at multiple levels (J26 JTAS; AFTFP; GBTS; AF CP&A)
- Lack of M2M information exchange (J26 JTAS; GBTS; AF CP&A)
- Limited reachback operations capability (J26 JTAS; AFTFP; GBTS; AF CP&A)
- Increased manpower requirements (AFTFP; GBTS)

#### **4.3.5. Lack of defined and enforceable data standards across Air Force, Joint and Interagency systems and applications**

The lack of defined and enforceable standards for data structure places severe limitations on the AFTE to effectively provide timely targeting operations and reachback support at required capacity to meet warfighting requirements. This is due to a lack of centralized acquisition management and ill-defined Air Force targeting doctrine, processes, organizational structure and training standards. Lack of data standards prevents A2A and M2M information flow. It also limits interoperability with our allied and coalition partners. Without defined data standards, allied and coalition partners develop capabilities not compatible with Air Force targeting capabilities. Additionally, because the AFTE does not have defined data standards, compiling information across databases and capabilities is a time-consuming manual

process. For example, currently targeteers have to access multiple databases individually to compile information for target development and BDA. Targeteers have no automated means to know if they are accessing all the right databases and if the information they are accessing is the most current information. Within the space and cyberspace domains, there are also significant restrictions on what information they can access due to security permissions and authority to disseminate.

With the lack of defined and enforceable data standards, many challenges present themselves and include:

- Limited A2A and M2M information transfer (J26 JTAS ;GBTS; AF CP&A)
- Limited Air Force production capacity (GBTS; AF CP&A)
- Increased manpower requirements (GBTS)
- Increased training burden (J26 JTAS; JTC-FWG; GBTS; AF CP&A)
- Inhibited interoperability with internal (i.e., Modernized Integrated Data Base (MIDB)) and external (i.e., Theater Battle Management Core Systems (TBMCS), Battlefield Information Collection and Exploitation Systems (BICES)) targeting capabilities (J26 JTAS; GBTS; AF CP&A)

#### **4.3.6. Compartmentalization of Space and Cyberspace capabilities prevents integration with the C2 community to enable a holistic targeting strategy**

As a result of compartmentalization, space and cyberspace capabilities are not fully integrated with the AFTE and C2 community because of a lack of: a multi-level security strategy; cyberspace and space analytic and collection management capabilities; an integrated tasking order; an ability to visualize effects to gain trust; and an ill-defined requirements process. There are no Air Force enterprise solutions to multi-level security systems that enable, through security filters, the release of data from SAP/SAR and JWICS to collateral security levels. Manual workarounds are the only means to move sanitized information to the collateral level. Also impeding integration is a lack of automated analytic and collection management capabilities that can provide an output that can automatically merge with kinetic planning, execution and CA. In general, space and cyberspace communities have capabilities that tend to be unique and have been developed without integration with the AFTE and C2 community capabilities. As a result, there is no Integrated Tasking Order that is automatically generated and includes air, space and cyberspace effects. Instead, there is an air-centric ATO within which cyberspace and space effects are wedged. This limits timing and synchronization between non-kinetic and kinetic operations and creates difficulties in deconfliction. Further confounding the integration problem is a lack of modeling and simulation capabilities that enable visualization and manipulation of information on space and cyberspace effects. This hampers predictive analysis within these domains. More significantly, it provides no mechanism to ensure the C2 community understands the available space and cyberspace effects and how they integrate into the overall strategy-to-task planning. Underpinning these challenges is an ill-defined requirements process that must maneuver within the C2 community, Cyberspace/Space communities, AFTE community, and Intelligence Community. Lack of understanding within the space and cyberspace communities, often prevents requirements from being above the cut line. Additionally, sensitivity between communities can prevent a requirement from being satisfied. Finally, given the complexity of the capabilities, time is needed to fully develop solutions.

Compartmentalization within the space and cyberspace domains creates many challenges to include:

- Disjointed targeting strategy (AFTRM WG)
- No Integrated Tasking Order (AFTRM WG)
- Limited deconfliction between kinetic and non-kinetic operations (AFTRM WG)
- No A2A or M2M information transfer between non-kinetic and kinetic realms (J26 JTAS; GBTS; AF CP&A)
- Multiple databases requiring multiple log-ins and manual compilation (AFTRM WG)
- Inability to quickly adapt to and visualize evolving space and cyberspace operational environments (AFTRM WG)
- Limited trust between kinetic and non-kinetic communities (AFTRM WG)
- Inability to model and simulate space and cyberspace capabilities to facilitate analysis (AFTRM WG)
- Ill-defined requirements process that neglects space and cyberspace needs (AFTRM WG)
- Lack of semantics or structure to differentiate and identify geographically fixed targets versus space targets in orbit or targets in cyberspace (AFTRM WG)

## **4.4. Actions**

Through centralized acquisition management structures and processes, a development and deployment strategy for targeting can be established. This strategy will focus on development of a targeting common architecture that supports a common computing environment and user interface. From an air operations planning perspective, those are the TBMCS and its replacement, the C2 Air Operations Suite and C2 Information Services (C2AOS/C2IS). It will ensure interoperability across enclaves, services, and allied and coalition partners, and enable the development of data standards to ensure full A2A and M2M information transfer. Because targeting is at the intersection of operations and intelligence, the targeting system enterprise must be in lock step with both the operational planning systems and the national intelligence database systems. We have identified specific actions to realize the AFTE end state for materiel targeting capabilities.

### **4.4.1. Develop a responsive, fiscally-sound, and centrally managed targeting development and deployment strategy**

- (Organization, Materiel, Policy) Establish formal requirements process between AFTE and acquisition community targeting program office for all capabilities (OPR: AF/A2C; OCR[s]: AFMC, ACC).
- (Organization, Materiel, Policy) Develop a formal dependency between the GIISR (primary) and C2, Global Precision Attack, Agile Combat Support, Cyberspace Superiority and Space Superiority (secondary) CFMPs with respect to targeting and IMD dependency (OPR: AF/A2C; OCR[s]: ACC, AFMC, AFSPC, AFISRA, AFC2IC).
- (Organization, Materiel, Policy) Develop integrated processes to plan, program and budget for targeting capabilities across the AFTE (OPR: AF/A2C; OCR[s]: ACC, AFC2IC).
- (Organization, Materiel, Policy) Establish formal integration mechanisms for C2 community development activities and AFTE development activities for all domains (OPR: AFMC; OCR[s]: AF/A2C, ACC).

- (Organization, Personnel) Assign billets to perform developmental planning and capabilities, planning and analysis for targeting and GEOINT support to targeting (OPR: AFMC; OCR[s]: AF/A2C, AF/A2D, ACC, AFC2IC).
- (Materiel) Develop a targeting development and deployment strategy that encompasses development, acquisition, testing, sustainment and modernization of targeting capabilities across all domains (OPR: AFMC; OCR: AF/A2C).

**4.4.2. Build, manage and evolve a targeting common architecture that supports efficient target development and new technology insertion, and is agile and responsive to the warfighter**

- (Organization, Materiel, Policy) Integrate targeting common architecture with C2, joint, interagency, coalition and allied communities (OPR: AFMC; OCR[s]: AF/A2C, AFC2IC, MAJCOMs).
- (Materiel) Develop systems engineering plan to develop, test, field, and modernize a common targeting architecture (OPR: AFMC; OCR[s]: AF/A2C, AFC2IC, MAJCOMs).
- (Materiel) Develop software development plan for introducing current and new technologies into the targeting common architecture (OPR: AFMC; OCR[s]: AF/A2C, AFC2IC, MAJCOMs).
- (Materiel) Develop key performance parameters (i.e., extensibility, composability, etc.) for an integrated suite of capabilities that facilitate, enable, and accelerate execution of the Joint Targeting Cycle across air, space and cyberspace domains (OPR: ACC; OCR[s]: AFMC, AF/A2C, MAJCOMs).
- (Materiel) Define requirements for and develop a three dimensional (3-D) visualization and manipulation tool (like Google Earth) that integrates non-terrestrial targets with terrestrial targets (OPR: AFSPC OCR[s]: AFMC, AF/A2C, MAJCOMs, AFTC).

**4.4.3. Ensure interoperability for seamless data flow across enclaves to enable unhindered and timely targeting support to planning, execution and assessment in air, space and cyberspace domains**

Full spectrum targeting must have the capability to function across security domains, across command and control functions, services, agencies, allied and coalition partners and within kinetic and non-kinetic operational environments across all phases of military campaigns. Capabilities in support of targeting activities must be designed to remove “stove-piping” and eliminate confusion by enabling differing activities residing at differing levels of command and execution to be accessible by all across security domains. Besides access, the information must be fully machine-to-machine transferable eliminating the need for manual reentry. A critical element of interoperability is its effect on Air Force operations with allied and coalition partners. These relationships must be formally recognized, documented and mandated as a requirement for system security and interoperability development now and for the future.

- (Organization, Policy) Air Force establish targeting governance to define and enforce interoperability between targeting related capabilities (OPR: AF/A2C; OCR[s]: AF/A3, MAJCOMs, SAF/AQ).

- (Organization, Materiel, Policy) Define requirements and develop processes and materiel solutions for kinetic and non-kinetic interoperability (OPR: AFSPC, OCR[s]: AFMC, MAJCOMs).
- (Materiel) Document requirements and develop a multi-level security system that enables multi security domain data transfer (i.e., NIPRNET to SIPRNET, SIPRNET to JWICS, JWICS to SIPRNET, JWICS and SIPRNET to Nuclear command and Control Communications (NC3), traditional to Space and Cyberspace networks, NIPRNET to BICES and other allied and coalition networks) (OPR: AFMC OCR[s]: MAJCOMs, AF/ A2C).

#### **4.4.4. Advocate and establish data standards across the AFTE and Joint Services**

The critical need for fully accepted, socialized and adhered to data standards across targeting operations exists to enable full A2A and M2M interfaces and unhindered reachback capabilities. The Air Force must review the current, unresolved test problem reports (TPRs) in automated targeting processes and the A2/A3 communities must work together to identify realistic, prioritized, funded resolution of the critical breaks. The Air Force must adopt a holistic view of targeting capabilities that identifies component data and information requirements for the development, acquisition, testing, sustainment and modernization efforts.

- (Organization, Policy) Establish a Community of Interest (CoI) within the proposed AF Targeting Governance structure for targeting to manage and evolve data standards definition for future capability development (OPR: AF/A2C; OCR[s]: MAJCOMs, AFMC).
- (Materiel, Policy) Ensure capabilities used in the AOC and other targeting production centers seamlessly exchange all appropriate data with operations capabilities used by operations planners (OPR: AFMC; OCR[s]: MAJCOMs, AFTC).
- (Materiel) Conduct information technology (IT) and process(es) bandwidth study to determine targeting reachback supportability requirements (e.g., data transfer rates, imagery, timeline, storage). Establish way ahead to resolve and provide required capabilities (OPR: AFISRA; OCR[s]: MAJCOMs, AF/A2CG, AFTC, air components).
- (Materiel) Submit data entry fields for the Modernized Integrated Database (MIDB) to support non-kinetic operations (OPR: AF/A2C; OCR: AFC2IC, AFSPC, AFSOC).
- (Materiel, Policy) Ensure capabilities used in the AFTC, AOC, and other target intelligence production centers, seamlessly exchange all appropriate data with the MIDB (OPR: AFMC; OCR[s]: MAJCOMs, AFTC).
- (Policy) Identify all the data fields required for targeting in the space and cyberspace domains to populate Computer Network Operations Database (CNODB) and MIDB (OPR: AFSPC/A2; OCR[s]: 14AF/A2, 24AF/A2, AFISRA).
- (Policy) AF work with Joint community, IC, and Five-Eyes Allies to establish baseline “Targeting Data Standards” and conduct follow-on engagement with additional allies and coalition partners to communicate and socialize baseline standards and identify potential changes and enhancements required for allied and coalition environments (OPR: AF/A2C; OCR[s]: JS/J26, MAJCOM A2/A3/A5).

## **Chapter 5: Education and Training**

“In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the military.”

*General Douglas MacArthur*

### **5.0. Introduction**

Air Force target training and education have proven insufficient to build and sustain a professional targeting cadre (officer, enlisted, and civilian) with the multi-discipline skill sets necessary to successfully plan and execute air, space, and cyberspace operations. This deficit extends beyond the intelligence career field. As the interface between intelligence and operations, target training must include a number of career fields that are involved in the planning and execution of air, space and cyberspace operations across the range of military operations (ROMO). Chapter 5 outlines the problem, desired end state, and way ahead by detailing the root causes and proposed solutions to meet these challenges.

### **5.1. Problem Statement**

Air Force target training lacks a holistic and comprehensive system that supports officer, enlisted, and civilian development and sustainment. The current target training and education process cannot sustain our current and future AFTE requirements.

### **5.2. Desired End State**

The Air Force must maintain and employ a highly qualified targeting force able to effectively work with planners and operators, develop system and entity-level targets, and support operational execution and assessment across all domains. This force should have the benefit of progressive standardized training that provides continued career development and skill enhancement. The training should ensure the standard applications and processes for required targeting processes and their associated target materials (i.e., PPM, CDE/CEE, target material production, weaponeering, airdrop damage estimation, and combat assessment) are integrated throughout the various courses and taught using the systems of record available to the operational force. A key element of the training program must be ensuring in-depth understanding of the entire targeting cycle and the integration of the skills, processes, and systems into that cycle for existing and future training exercises across targeting and supporting functional areas.

### **5.3. Root Causes**

#### **5.3.1. Lack of sufficient maturity in current target training**

Target training in the Air Force has recently undergone a significant overhaul. This overhaul resulted in a new AFSC awarding course (X3ABR1N131B00AB) for enlisted targeteers. However, the limited intermediate and advanced training currently available for the enlisted, officer or civilian career fields has not matured to the point that is desired for professional development of Air Force targeting personnel.

Challenges contributing to target training maturity include:

- The 1N1X1B AFSC awarding course only in existence since January 2010 (AFTRM WG)
- No established training plan beyond 5-level (GBTS)
- Career continuation training plan for mid-career officers is under development (GBTS)
- Limited to no training requirements or opportunities for unique skill sets related to specific target types, munitions, missions or domains (e.g., HDBT, WMD, SOF, nuclear, cyberspace, space, etc.) (AFTFP; GBTS)
- Insufficient operational experience levels for effective course training and on-the-job training (OJT) (GBTS)
- Limited continuity in instructor cadre (GBTS)

### **5.3.2. Lack of targeting knowledge by supporting disciplines**

Many AFSCs and disciplines outside the 1N1X1B career field (e.g., 1N0, 1N2, 1B4, and 17D) provide direct support to targeting or target material production, but their AFSC awarding courses contain only rudimentary target-related training. This has significant impact to the targeting enterprise. Negative results include additional training burdens at the unit level, sub-optimization of resources, and decreased capacity and efficiency in support of operational mission planning and execution.

Challenges related to inadequate targeting knowledge are:

- Fundamentals of targeting, which are applicable to select non-intelligence career fields, are not taught in corresponding basic, intermediate, or advanced courses (AFTRM WG)
- Defining training/certification requirements in the targeting process supporting decentralized execution for Joint Terminal Attack Controller (JTAC), Joint Fires Observer (JFO), Forward Observer (FO), Combat Air Forces (CAF) platforms, in Joint or Coalition environments (AFSOC)
- Limited targeting courses available for IC personnel engaged in support of Air Force targeting (NASIC)

### **5.3.3. Lack of dedicated targeting officer cadre**

Air Force targeting originally included both officer and enlisted AFSCs specifically trained in targeting processes and procedures. The officer cadre provided enterprise leadership, advocated for resources in the planning and programming community, developed requirements for targeting products and systems, and served as the Air Force representative with the joint and other Service targeting entities. In 1993, the Air Force merged the Targeting Officer (8085) and other specialized AFSCs into the single 14N Intelligence Officer career field we have today. Consensus now is that the dissolution of the targeting

officer career field has contributed to the Air Force's degraded ability to effectively support warfighting operations with the most effective and efficient use of AF capabilities.

Challenges associated with this lack of dedicated targeting officer shortfall include:

- Lack of extensive targeting expertise across the Air Force officer corps (GBTS)
- No deliberate plan for development of targeting expertise throughout a 14N's career (GBTS; AFTRM WG)
- Difficulty tracking officers with targeting training/experience (AFTFP; GBTS)
- Difficulty identifying 14N billets that require targeting expertise (AFTRM WG)
- No institutional advocacy for Air Force targeting equities (AFTFP; GBTS)

## **5.4. Actions**

The following actions are recommended to address the identified spectrum of issues. They are intended to provide a comprehensive training environment and opportunities to improve Air Force capabilities for targeting and maintenance of a high quality AFTE.

### **5.4.1. Mature Air Force Target Training**

- (Organization, Policy) Air Force determine most effective alignment of AF Target training programs (i.e., AFP4, CDE) (OPR: A2D; OCR[s]: AETC, ACC, AFTC).
- (Training) Career Field Manager (CFM) or designated representative and appropriate career field training manager(s) engage the Air Force targeting community to develop a target training roadmap and implementation plan for officer, enlisted, and civilian career fields. In addition to formal courses, it must take into account duty qualifications that are achieved through initial qualification training (IQT), mission qualification training (MQT), and continuation training at production units and AOCs. (OPR: AF/A2D; OCR[s]: AF/A2C, MAJCOMs, AFTC, AETC).
- (Training) Integrate new joint target development policy (CJCSI 3370.01) into the basic course (X3ABR1N131B00AB). OPR will leverage existing Joint Intermediate Target Development (JITD) course curriculum to expedite course re-write. (OPR: AF/A2D; OCR[s]: AETC, AFTC).
- (Training) Air Force continue aggressive throughput of the basic course (X3ABR1N131B00AB) to increase levels of targeting expertise in the operational force (OPR: AF/A2D; OCR: AF/A2C).
- (Training) Develop formal, classified training materials that focus on non-kinetic operations, capabilities and effects (emphasis on cyberspace and space capabilities) and incorporate as appropriate in all levels of formal courses (OPR AF/A2D; OCR[s]: AFSPC, AETC).
- (Training) Identify the required training and career tracks for 1N4A, 1B4, 14N, and 17DXA that will supplement kinetic-focused targeting units with the required cyberspace expertise (OPR: AF/A2D; OCR[s]: AFSPC/A2, 24AF/A2).
- (Training) Identify the required training and career tracks for 13S and 1C6 that will supplement kinetic-focused targeting units with the required space expertise (OPR: AF/A2D; OCR[s]: AFSPC/A2, 14AF/A2).

- (Training) Include training on specialized targeting skill sets related to specific target types, munitions, missions or domains (nuclear, HDBT, WMD, SOF, space, cyber, etc.) in the targeting training roadmap and implementation plan (OPR: AF/A2D; OCR[s]: AFSPC, 24AF, 14AF, AFISRA AFGSC, AETC).
- (Training) Ensure rated personnel (11X, 12X) placed in targeting positions receive appropriate target-related training (OPR: AF/A3; OCR[s]: AF/A2D, ACC/A3, AETC).
- (Training) Integrate effects-based analysis into applicable formal courses (OPR: AF/A2D; OCR: AETC).
- (Training) Determine if there is a valid requirement to establish a weaponeering certification program (OPR: AF/A2D; OCR[s]: MAJCOMS, AF/A2C).
- (Training) Integrate airdrop damage estimation (ADE) methodology into applicable formal courses. (OPR: AF/A2D; OCR[s]: AMC, AETC).
- (Training) Air Force establish curriculum and throughput for potential generation of a DTRA nuclear targeting course (in residence or mobile training team (MTT)) (OPR: AF/A2D OCR[s]: AFGSC, AFTC).
- (Training) Incorporate advanced holistic, multi-discipline weapon effects/weaponeering (kinetic and non-kinetic capabilities with lethal and non-lethal effects) and BDA/MEA concepts into appropriate targeting courses (OPR: AF/A2D; OCR[s]: AF/A2C, MAJCOMS A2/A3.)
- (Training) Responsible MAJCOMs or Agencies develop distance learning (DL) courses for unconventional and non-kinetic targeting functional areas (SOF, Cyberspace, Nuclear, Behavioral Influence, Space) to be made available on Joint Intelligence Virtual University (JIVU) (OPR: AF/A2D; OCR[s]: AFSOC, AFSPC, AFGSC).
- (Training, Personnel) AETC work with Air Force Personnel Center (AFPC) and Force Support Career Field Training Manager to ensure adequate breadth and experience in AFTE operations is present in instructor (OPR: AETC; OCR[s]: AFPC, AF/A2D).
- (Training, Personnel) Limit target instructor positions to deployment support of last resort through X-Banding positions as Institutional Forces to ensure the training mission is accomplished. (OPR: AETC; OCR[s]: AFPC, AF/A2D).
- (Training, Personnel) Air Force develop and implement targeting internship program (OPR: AFPC; OCR[s]: AF/A2D, MAJCOMs, AFTC).

#### **5.4.2. Increase level of targeting knowledge in targeting support disciplines/mission areas**

- (Training) Review non-1N1X1B intelligence AFSCs training and incorporate requisite target development and assessment training items into their Career Field Education and Training Program (CFETP). May include options, such as remote learning, computer-based training (CBT), and mobile training team (MTT), and leverage existing courses (Service, joint) if applicable (OPR: AF/A2D; OCR: AETC).
- (Training) ACC, with assistance from AFISRA, develop training and TTPs to implement effective BDA support for both in-theater and reachback operations that include linkages to the IC functions that support target folder development support or reachback (OPR: ACC OCR[s]: AFISRA, Air Force Components, AFTC).

- (Training) Exercise employment of integrated kinetic and non-kinetic capabilities in Air Force /Joint exercises and experiments in the air, space and cyberspace domains and the information environment (OPR: ACC; OCR[s]: MAJCOMs).
- (Training) ACC assess whether AOC training/courses (e.g., 505 CCW AOC IQT) require enhanced targeting and combat assessment training/education, and if so, generate appropriate implementation plan (OPR: ACC; OCR[s]: air components).
- (Training) Explore inclusion of basic instruction blocks on targeting in appropriate related career fields courses and professional military education (PME) (OPR: AF/A2D; OCR[s]: AF/A1D, AETC).
- (Training) Explore and identify appropriate General Officer training/courses (Joint Service Staff College (JSSC), JFACC, etc.) to incorporate targeting training/education (OPR: AF/A2D; OCR[s]: AETC, LeMay Center).
- (Training) AFSPC ensure approved targeting principles and courseware are incorporated into and taught at Space and Missile Intelligence Formal Training Unit (IFTU) and Cyber IFTU once it is established (OPR: AFSPC; OCR[s]: AF/A2D, AF/A2C, AETC, AFTC).

#### **5.4.3. Improve courses and availability for professional development of targeting cadre**

- (Training) Investigate establishment of a Targeting Weapons School course or potential adjustment of existing Intelligence Weapons Instructor Course (IWIC) course and Intelligence Sensors Weapons Instructor Course (ISWIC) to satisfy Air Force Target Intelligence training requirements (OPR: AF/A2D; OCR[s]: ACC/A3, MAJCOM A2s, AF/A2C).
- (Training) Ensure Targeting ISR 200/300/400 continuing technical training courses, currently under development, align with the targeting training roadmap (OPR: AETC; OCR: AF/A2D, MAJCOMs).
- (Personnel) Military and civilian Career field managers for 11X, 12X, 14N, 1N, 17D, 13S, 1B4, 1C6, 3D, 0132, etc., use Career Path Tool (CPT) to track quantitative and qualitative targeting skill set experience for each professional to precisely identify targeting experience by billet as well as track inventory for the career field as a whole (OPR: AF/A2D; OCR: AFPC).

## Chapter 6: Force Management

“Air power is like poker. A second-best hand is like none at all — it will cost you dough and win you nothing.”

*General George Kenney, Commander of Allied Air Forces in the Southwest Pacific*

### **6.0. Introduction**

As the demand for precision targeting has increased, the force management structures and policies in place have not kept pace. They also have not adapted to the creation and maintenance of a stable, experienced cadre of targeting professionals able to optimize the employment of Air Force capabilities in the air, space, and cyberspace domains. The Air Force must look to new and creative ways to create and nurture the necessary targeting expertise to effectively perform in the joint force. Chapter 6 outlines the problem, desired end state, and way ahead by detailing the root causes and proposed solutions to meet these challenges.

### **6.1. Problem Statement**

Current enlisted, officer, and civilian force management guidelines and practices are incompatible with building and sustaining a professional targeting force.

### **6.2. Desired End State**

An integrated AFTE comprised of highly trained targeting specialists able to effectively work with planners and capability experts to support operations planning and conduct timely, accurate, and relevant target intelligence across air, space, and cyberspace domains to meet Air Force precision engagement and global reach mission needs.

The force management process will strive to increase the depth of targeting expertise in the enlisted, officer, and civilian force available to commanders. This will include greater specialization and continuity in targeting assignments for officers and civilians as well as better career management of those assets. It will include a professional civilian targeting cadre to ensure continuity and depth of expertise through longevity in targeting positions that are not always possible to have with the active duty military force. There will also be a conscious effort to optimize available targeting capabilities by restricting targeting personnel from being assigned non-targeting duties while filling designated targeting positions.

It will be imperative to use force management practices to achieve kinetic/non-kinetic integration through directed assignment processes and training programs. Additionally, proper practices will enable force balancing actions (billet conversions to increase authorizations) to ensure that the optimum mix of enlisted targeting billets is appropriately allocated between CONUS and OCONUS locations.

### **6.3. Root Causes**

#### **6.3.1. Air Force ISR force management policies and processes inhibit development of in-depth targeting expertise**

Current Air Force ISR force management has deemphasized specialization of the officer corps and hindered continuity of expertise in the enlisted force with subject matter experts often placed in other than targeting positions during deployments or even upon PCS. Though recent actions have attempted to repair the shortfalls in the enlisted career field for kinetic capabilities, targeting expertise in the officer corps is still severely limited. The lack of a dedicated officer cadre affects the Air Force at all levels, from wing to MAJCOM to Air Force Components. The result is reflected in the fact that the Air Force Components have few officers with the training, education and experience necessary to effectively work or advocate day-to-day target issues ranging from policy, manning, standards, and TTPs to OPLAN development. Currently, there is no effective way to clearly identify officers with explicit targeting training and skill set experience. This makes it very difficult to effectively manage that portion of the force. Additionally, with the recognition that a stable civilian force is key to an effective AFTE, management of the civilian personnel directly involved in targeting or targeting support functions requires much more attention than has been provided in the past.

Force management policies and processes that contributed to inhibiting professional targeting force development include:

- Officer assignment policies preventing specialization and developing a depth of experience in targeting (GBTS)
- Current methods are inadequate to track officers or civilians with targeting experience (AFTFP; GBTS; AF CP&A)
- No career path for civilian targeting personnel (AFTRM WG)
- Inadequate management of civilian targeting cadre to provide continuity (AFTRM WG)
- Inadequate continuation training for ISR targeting personnel (AFTFP; GBTS; AF CP&A)

#### **6.3.2. Sub-optimization of assigned targeting resources**

Leadership at a variety of operational levels does not always understand the requirements and capabilities of assigned targeting personnel and their role in the support of the mission. This may result in a scarce targeting resource being assigned to non-targeting duties, potentially placing certifications at risk and degrading related targeting skills and processes. At the present time, there are mechanisms available to help ensure critical enlisted targeting resources are only deployed and used to perform targeting functions. However, unit leadership still retains the option to use targeteers in non-targeting capacities with appropriate waivers.

Challenges that contribute to the sub-optimal use of scarce targeting resources include:

- Lack of understanding of targeting contribution to unit mission (AFTRM WG)
- Inadequate deployment assignment mechanisms to ensure effective use of officer targeting personnel (GBTS)

### **6.3.3. CONUS and OCONUS targeting billet mix is unsustainable**

Current imbalance of enlisted targeting billet allocations between CONUS/OCONUS organizations is causing stress on the enlisted targeting career field. This imbalance results in lower time on station at CONUS locations before individuals are selected for an OCONUS assignment. This lower time on station, coupled with operations tempo (OPSTEMPO), decreases time available in CONUS assignments for training and maintenance of certifications.

Factors that must be addressed to resolve this imbalance of the enlisted targeting force are:

- OCONUS active duty enlisted targeting billets exceed CONUS billet structure (AFTRM WG)
- Inadequate training opportunities (AFTFP; GBTS; AF CP&A)
- Operations Tempo (AFTRM WG)

### **6.3.4. Current Air Force force management does not support effective integration of kinetic and non-kinetic capabilities.**

Assignment policies, training, and organizational billet structures have not adequately adapted to foster integration of kinetic and non-kinetic capabilities. Instead, kinetic and non-kinetic engagement capabilities operate with inadequate knowledge of each other's capabilities and organizational issues. This prevents effective integration of kinetic/non-kinetic approaches to achieve desired effects.

To help integrate kinetic and non-kinetic capabilities, the Air Force must address issues to include:

- Insufficient training and education of non-kinetic capabilities for targeteers, target-enabling specialties, and Air Force leadership (GBTS)
- Immature processes and little empirical data to support predictable effects of non-kinetic capabilities (AFTRM WG)
- Integration of kinetic/non-kinetic capabilities hindered by program access issues (GBTS)
- Insufficient cadre of Space ISR and Cyberspace ISR professionals who are trained to understand potential space and cyberspace targets (AFTRM WG)

### **6.3.5. Nuclear enterprise deficient of Air Force personnel capable of effectively targeting for Nuclear weapons**

De-emphasis on the nuclear mission and associated drawdown of Air Force resources intimately involved in the nuclear mission have contributed to the atrophy of Air Force nuclear targeting and weaponing expertise.

To reestablish a viable nuclear targeting capability within the Air Force, issues needing attention include:

- Significantly reduced number of nuclear trained/experienced Air Force targeting personnel (AFTRM WG)
- No effective method to track nuclear targeting experience (AFTFP; GBTS)
- No focused Air Force training available to support nuclear targeting operations and acquisition processes (AFTRM WG)

## **6.4. Actions**

The following actions address force management challenges and requirements to ensure a trained, targeting corps within the Air Force capable of providing warfighters with integrated options planning and employing kinetic and non-kinetic capabilities to meet commander objectives. The force—AD, civilian, and ARC—must be managed with an enterprise approach to ensure the most efficient use of resources and the maintenance of a sustainable, scalable force capable of meeting deliberate planning and crisis targeting needs.

### **6.4.1. Create and sustain active duty and civilian targeting expertise**

- (Training) Develop and/or identify continuing training opportunities for 11X, 12X, 14N, 17D, 13S, 1N2, 1B4, 3D, 1C6, and enlisted targeting force spanning basic to advanced targeting skills (e.g., Intelligence Formal Training Unit, IWIC, Joint Targeting School (JTS), etc.) (OPR: AF/A2D; OCR[s]: AETC, MAJCOMs, Air Force Components).
- (Training) Create standards/qualifications to earn special experience identifier for officer, enlisted (not applicable to 14N and 1N1X1B) and civilian personnel (OPR: AF/A2D; OCR[s]: MAJCOMs).
- (Personnel) Implement skill set experience tracking method (Career Path Tool). System must track across AFSCs and categorize education/training (OPR: AF/A2D; OCR[s]: AFMC, AF/A1D).
- (Personnel) Conduct data call for 1N1X1B, 1N4X1A, and 14N targeting billet requirements. Units review organization structure and ensure correct AFSC and coding of billets (AFSC, SEI, billet, prefix) (OPR: AF/A2D; OCR[s]: MAJCOMs, Air Force Components).
- (Personnel) Career field managers use CPT to track quantitative and qualitative target experience (kinetic, non-kinetic, cyberspace, nuclear, HDBT, WMD, SOF, space, etc.) and targeting related experience (e.g., CA, PPM, CDE, etc.) for each officer, enlisted, and civilian to precisely identify targeting skill set experience by billet as well as track inventory for the career field as a whole (OPR: AF/A2D; OCR[s]: AFRC, Air Force Manpower Agency (AFMA)).
- (Personnel) Create targeting specialty path (w/SEI) for civilian and non-1N1X1B enlisted force personnel. Career path should be applied to intelligence and other appropriate fields/disciplines in civil service consistent with the requirements of DoDI 1100.22, *Policy and Procedures for Determining Workforce Mix*. (OPR: AF/A2D; OCR: AFMA).
- (Personnel) Develop civilian workforce to fill key targeting positions to include instructor duty, AFTC, and designated staff positions consistent with the requirements of DoDI 1100.22. (OPR: AF/A2D; OCR[s]: AFPC, AFMA, MAJCOMs).

#### **6.4.2. Optimize Air Force targeting resources**

- (Organization) Utilize targeting unit type codes and ensure personnel are appropriately aligned (OPR: ACC/A2; OCR[s]: MAJCOMs).
- (Organization) Air Force Components and reachback organizations evaluate utility of realigning targeting personnel (i.e., targeting detachments) to prevent diffusion of capability (OPR: AF/A2D; OCR[s]: MAJCOMs).
- (Organization, Personnel) Evaluate utility of a virtual Targeting Center of Knowledge (CoK) through establishment of a registry of functional SMEs (i.e., HDBT, WMD, nuclear, cyberspace, space, influence, SOF, BDA, etc.) that lends itself to ease in identification and access to SMEs for virtual access/support (OPR: AF/A2C OCR[s]: MAJCOM A2s, AFTC).
- (Leadership, Policy) Revise, publish and enforce appropriate Air Force Instructions (AFIs) and DCS-ISR Career Field Manager Memoranda for Record (MFRs) to prevent assignment of enlisted targeting personnel to non-core AFSC duties (OPR: AF/A2D, OCR: AF/A2C).
- (Personnel) Ensure joint registries for PPM and CDE certified personnel are accurately maintained with Service data (OPR: AFTC; OCR: AF/A2C).

#### **6.4.3. Create sustainable CONUS/OCONUS targeting billet structure**

- (Personnel) Review and validate Air Force targeting billets assigned to Air Force and joint organizations (OPR: AF/A2D; OCR[s]: AFPC, MAJCOMs).
- (Personnel) Pending increased CONUS authorizations, implement and manage balanced force structure to enable mutually reinforcing and sustainable CONUS/OCONUS permanent change of station (PCS) move rates (OPR: AF/A2D; OCR[s]: AFPC, MAJCOMs).

#### **6.4.4. Manage force to foster integration of kinetic/non-kinetic capabilities with emphasis on space and cyberspace capabilities**

- (Training) Institute training on non-kinetic capabilities in targeting courses that cover engagement options. Specifically, force application and weaponeering courses must cover non-kinetic capabilities and their effects. (OPR: AF/A2D; OCR[s]: AFSPC, AETC).
- (Leadership) Increase the instruction of targeting policy at all levels of officer, enlisted, and civilian PME (OPR: AF/A2D; OCR: AETC).
- (Personnel) Determine appropriate billet structure of kinetic/non-kinetic targeting and targeting-related expertise that should reside in operational and reachback/distributed operations locations (OPR: AF/A2D; OCR[s]: AF/A2C, MAJCOMs, AFTC, AFISRA, air components).
- (Personnel) Assign aircrew rated personnel with air-to-ground experience to the AFTC and other production/reachback organizations to provide necessary operational input on deliberate planning and expertise on operational TTP (OPR: ACC).
- (Personnel) Streamline procedures for acquiring non-kinetic capability special program accesses for targeting personnel (OPR: AF/A3; OCR: AF/A2C).
- (Personnel) AFSPC coordinate Space and Cyberspace ISR Force Development Roadmaps with AFTC to ensure AFTE equities. (OPR: AFSPC; OCR[s]: AF/A2D, AF/A2C, AFISRA, AFTC).

#### **6.4.5. Reestablish Air Force nuclear targeting expertise**

- (Personnel) Identify requirement (level of expertise and number) for Air Force nuclear targeting positions throughout service, joint, and allied environments (OPR: AF/A2D; OCR[s]: AFGSC, AF/A2C).
- (Personnel) Create method to distinguish and track nuclear targeting expertise/experience for Total Force (OPR: AF/A2D; OCR: AFPC).

#### **6.4.6. Create mechanism to seamlessly integrate a scalable ARC capability to meet expertise and surge targeting requirements**

- (Personnel) AD force document the type and level of support required from ARC (OPR[s]: MAJCOMs; OCR[s]: AFRC, NGB).
- (Personnel, Training) ARC source and train to documented targeting requirements (OPR: AFRC; OCR[s]: NGB, MAJCOMs).

## Summary and Way Ahead

“The choice of enemy targets is the most delicate operation of aerial warfare.”

*General Giulio Douhet, 1921  
Air Power Theorist*

The Air Force Targeting Roadmap identifies the key problems, root causes and actions necessary to reinvigorate Air Force targeting as recently directed by the Secretary of the Air Force, the Air Force Chief of Staff, and the 2012 CORONA South conference. Stakeholders and subject matter experts across the Air Force contributed to the creation of this roadmap. A thorough review and validation of deficiencies identified in multiple studies, lessons learned, and recent real-world contingency operations resulted in 33 root causes and 165 specific challenges/issues for the five major focus areas: Targeting requirements and production capacity; Reachback and distributed operations; Systems, tools, and architectures; Education and training; and Force management.

We, as an Air Force-wide group, then analyzed the causes and issues for the most effective way to eliminate or mitigate their impact to targeting support to operations. Twenty-three actions and 151 specific tasks identified by AFTRM stakeholders will be used to develop a comprehensive AF Targeting Plan of Actions and Milestones. The POA&M, managed by Air Combat Command in its role as the CAF lead for targeting, will detail the tasks, associated sub-tasks, timelines, responsible organizations, and resource requirements necessary for the Air Force to organize, train, and equip and manage targeting and targeting-related personnel and resources. The goal is to produce an AFTE capable of meeting air component targeting requirements in support of joint operations in the near-term and in the future. It integrates the emerging capabilities of space and cyberspace into a holistic targeting process ensuring all capabilities are evaluated for their contribution to the full range of Air Force missions.

Success in revitalizing Air Force targeting capabilities depends on sustained commitment by senior Air Force leadership to take measured and deliberate action on the guidance provided in this comprehensive roadmap.

## **Appendix 1**

### **Air Force Targeting Roadmap**

#### **Terms of Reference**

**Accuracy.** For locations, accuracy is the displacement (error of a plotted point from its true position in relation to an established standard. Accuracy relates to the quality of a result, such as geocoordinates for a Joint Desired Point of Impact (JDPI) Accuracy is affected by precision (repeatability) as well as the existence of unknown or systematic errors, while precision is affected only by the random errors in the measuring process. (*CAF Concept for Aimpoint Development Support to Coordinate-seeking Weapons*, April 2010)

**Adaptive Planning and Execution System.** A Department of Defense system of joint policies, processes, procedures, and reporting structures, supported by communications and information technology, that is used by the joint planning and execution community to monitor, plan, and execute mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations. Also called **APEX system**. (Approved for inclusion in JP 1-02.)

**Aimpoint.** 1. A point associated with a target and assigned for a specific weapon impact. 2. A prominent radar-significant feature used to assist an aircrew in navigating and delivering their weapons (JP 3-60)

**Airdrop Damage Estimation (ADE) Methodology.** The ADE methodology is a balance of science and art that produces the best judgment of potential damage concerns. As a science, the ADE methodology uses a mix of empirical data, probability, historical observations, and modeling for ADE assessments. However, the science is inherently limited by the quantity and reliability of collected and analyzed airdrop data and aimpoint information. Taken together, the ADE's methodology's science and art provide commanders an assessment of damage concerns that, when weighed against sound judgment and operational considerations, help determine if mission warrants the risk. (TB 10-03, Change 1, 7 July 2010)

**Application-to-Application (A2A) integration.** A2A integration is a framework composed of a collection of technologies and services which form a middleware to enable integration of systems, tools and applications across an enterprise. It enables real-time integration of data or a function from one application program together with that of another application program. Application-to-application integration also allows the enterprise to leverage Cloud technology and applications in order to significantly improve data management and cost savings through improved enterprise computational/IT and data access efficiencies.

**Battle Damage Assessment.** The estimate of damage resulting from the application of lethal or non-lethal military force. Battle damage assessment is composed of physical damage assessment, functional damage assessment, and target system assessment. Also called **BDA**. (JP 3-0)

**Collateral Damage.** Unintentional or incidental injury or damage to persons or objects. (JP 3-60)

**Combat Assessment.** The determination of the overall effectiveness of force employment during military operations. Tactical-level Combat Assessment is composed of three major components: (a) battle damage assessment; (b) munitions effectiveness assessment; and (c) reattack recommendation. Also called **CA**. (JP 3-60)

**Contingency Plan.** A plan for major contingencies that can reasonably be anticipated in the principal geographic subareas of the command. (Approved for inclusion in JP 1-02.)

**Crisis Action Planning.** The Adaptive Planning and Execution system process involving the time-sensitive development of joint operation plans and operation orders for the deployment, employment, and sustainment of assigned and allocated forces and resources in response to an imminent crisis. Also called **CAP**. (Approved for incorporation into JP 1-02.)

**Deliberate Planning.** 1. The Joint Operation Planning and Execution System process involving the development of joint operation plans for contingencies identified in joint strategic planning documents. Deliberate planning is accomplished in prescribed cycles that complement other Department of Defense planning cycles in accordance with the formally established Joint Strategic Planning System. 2. A planning process for the deployment and employment of apportioned forces and resources that occurs in response to a hypothetical situation. Deliberate planners rely heavily on assumptions regarding the circumstances that will exist when the plan is executed. (JP 5-0)

**Distributed Operations.** The process of conducting operations from independent or interdependent nodes in a teaming manner. Some operational planning or decision-making may occur from outside the joint area of operations. The goal of a distributed operation is to support the operational commander in the field; it is not a method of command from the rear. (AFDD 6-0)

**Functional Damage Assessment.** The estimate of the effect of military force to degrade or destroy the functional or operational capability of the target to perform its intended mission and on the level of success in achieving operational objectives established against the target. (JP 3-60)

**Kinetic.** Relating to actions that involve the forces and energy of moving bodies, including physical damage to or destruction of targets through use of bombs, missiles, bullets, and similar projectiles. (AFDD 3-60)

**Measures of Effectiveness.** Tools used to measure results achieved in the overall mission and execution of assigned tasks. Measures of effectiveness are a prerequisite to the performance of combat assessment. Also called **MOEs**. (JP 1-02)

**Munitions Effectiveness Assessment.** Conducted concurrently and interactively with battle damage assessment, the assessment of the military force applied in terms of the weapon system and munitions effectiveness to determine and recommend any required changes to the methodology, tactics, weapon system, munitions, fusing, and/or weapon delivery parameters to increase force effectiveness. Munitions

effectiveness assessment is primarily the responsibility of operations with required inputs and coordination from the intelligence community. Also called **MEA**. (JP 2-01)

**Non-kinetic.** Relating to actions that produce effects without direct use of the force or energy of moving objects, including such means as electromagnetic radiation, directed energy, information operations, etc. (AFDD 3-60)

**Physical Damage Assessment.** The estimate of the quantitative extent of physical damage (through munitions blast, fragmentation, and/or fire damage effects) to a target resulting from the application of military force. This assessment is based upon observed or interpreted damage. (JP3-60)

**Precision.** Precision denotes nothing more than repeatability of measurements. Although the terms 'precision' and 'accuracy' are often used interchangeably, there is an important difference between them. Precision relates to the quality of the measurement process, while accuracy measures the absolute displacement, deviation, or error obtained. (*CAF Concept for Aimpoint Development Support to Coordinate-seeking Weapons*, April 2010)

**Reachback.** The process of obtaining products, services, and applications, or forces, or equipment, or material from organizations that are not forward deployed. (JP 3-30)

**Reattack Recommendation.** An assessment, derived from the results of battle damage assessment and munitions effectiveness assessment, providing the commander systematic advice on reattack of a target. Also called **RR**. (JP 3-60)

**Target.** 1. An entity that performs a function for the adversary considered for possible engagement or other action. 2. In intelligence usage, a country, area, installation, agency, or person against which intelligence operations are directed. 3. An area designated and numbered for future firing. 4. In gunfire support usage, an impact burst that hits the target. Also called **TGT**. (JP 3-60)

**Target Coordinate Mensuration** (also called **Precise Point Mensuration (PPM)**). The process of measurement of a feature or location on the earth to determine an absolute latitude, longitude, and height. For targeting applications, the errors inherent in both the source for measurement as well as the measurement processes must be understood and reported. Mensuration tools can employ a variety of techniques to derive coordinates. These may include, but are not limited to, direct read from digital point positioning database (DPPDB) stereo-pairs in stereo or dual mono mode, multi-image geopositioning, or indirect imagery correlation to DPPDB. (CJCSI 3505.01)

**Targeteer.** Multi-disciplinary specialists highly trained in analyzing targets and developing targeting solutions to support the commander's objectives. (AFDD 3-60)

**Targeting.** The process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. (AFDD 3-60)

**Target Analysis.** An examination of potential targets to determine military importance, priority of attack, and weapons required to obtain a desired level of damage or casualties. (JP 3-60)

**Target Development.** The systematic examination of potential target systems—and their components, individual targets, and even elements of targets—to determine the necessary type and duration of the action that must be exerted on each target to create an effect that is consistent with the commander's specific objectives. (JP 3-60)

**Target Folder.** A folder, hardcopy or electronic, containing target intelligence and related materials prepared for planning and executing action against a specific target. (JP 3-60)

**Target Intelligence.** Intelligence that portrays and locates the components of a target or target complex and indicates its vulnerability and relative importance. (JP 3-60)

**Target Materials.** Graphic, textual, tabular, digital, video, or other presentations of target intelligence, primarily designed to support operations against designated targets by one or more weapon(s) systems. Target materials are suitable for training, planning, executing, and evaluating military operations. (JP 2-0)

**Target System.** 1. All the targets situated in a particular geographic area and functionally related.  
2. A group of targets that are so related that their destruction will produce some particular effect desired by the attacker. (JP 3-60)

**Target System Analysis.** An all-source examination of potential target systems to determine relevance to stated objectives, military importance, and priority of attack. It is an open-ended analytic process produced through the intelligence production process using national and theater validated requirements as a foundation. Also called **TSA**. (JP 3-60)

**Target System Assessment.** The broad assessment of the overall impact and effectiveness of the full spectrum of military force applied against the operation of an enemy target system, significant subdivisions of the system, or total combat effectiveness relative to the operational objectives established. (JP 3-60)

**Weaponering.** The process of determining the quantity of a specific type of lethal or non-lethal means required create a desired effect on a given target. (JP 3-60)

## **Appendix 2**

### **“Top 5” Targeting Issues**

#### **AF2CIC**

- Global Command and Control System Integrated Imagery and Intelligence (GCCS-I3) version synchronization between combatant commands and AOC
- Ability for AOCs to effectively reachback to CONUS for targeting support
- Kinetic/non-kinetic integration
- Maintaining synchronization and interoperability of evolving systems

#### **ACC**

- Targeting lanes in the road between MAJCOMs, AFTC, Air Staff, Air Force Components, AOCs
- Coordination of CAF requirements for targeting support
- Kinetic/non-kinetic integration
- Combat assessment enhancement
- AFTE governance

#### **AFCYBER (24 AF)**

- Standardized target package requirements (across Services and combatant commands)
- Adaption of traditional targeting organization and process to cyberspace operations
- Incorporation of cyberspace domain unique requirements into traditional (doctrinal) targeting processes
- Service and IC system-level vulnerability analysis to enable cyberspace operations
- Identification/creation of tools to support cyberspace targeting requirements

#### **AFGSC**

- (Conventional) Standardized executable target materials
- (Conventional) Production role and responsibilities
- (Conventional) Standardized/interoperable targeting automation (Joint targeting Toolbox (JTT)) and databases
- (Conventional) Improve Air Force BDA capabilities (AF DCGS, AFTC) for Service and Federated operations
- (Conventional) Increase emphasis on OPLAN/JAOP development – reinvigorate deliberate planning

- 
- (Nuclear) Production of Aim Point Graphics (APGs)
  - (Nuclear) Decline in nuclear targeting expertise
  - (Nuclear) Decline in nuclear BDA expertise

#### **AFISRA**

- Intel support to targeting roles and responsibilities (defined “Lanes in the Road”)
- Cyberspace unit employment inconsistencies between Service and NSA
- Managing transition from COIN to large-scale force-on-force planning and operations

- National Tactical Integration
- Releasability concerns for Joint/Coalition operations

### AFMC

- Disparate Joint/combatant commands operational and production requirements/standards increases resource requirement
- Undefined Cyberspace, Space and IO targeting requirements
- Lack of non-kinetic targeting analysis/development
- Wide variance in Joint/Coalition targeting systems, tools and architectures

### AFRC

- Ensure qualifications timelines are Reserve friendly while maintaining like standards
- AFRC targeteers ability to attain and sustain required Precision Point Mensuration credentials
- Timely engagement with AF Corporate Structure to program future AF Reserve Associate and Unit Equipped Targeting units
- Optimize, develop, and grow Air Force reserve Command ISR Force, especially in surge targeting production
- Synchronize systems, architectures, TTPs, and capabilities for access to Air Force Targeting Enterprise for reserve operational missions

### AFSOC

- Lack of targeteer billets in command
- Require unit-level targeting training plan
- Targeting systems and software for AFSOC
- Must establish targeting support relationships with AOCs, combatant commands, NGA, and AFTC
- AFSOC SOP and TTPs require update for targeting

### AFSPC

- Inadequate school house training for full-spectrum targeting (space/cyber/IO/kinetic). Includes lack of Phase 0 exercise engagement for realistic employment of non-kinetic operations
- Need to move from 'info-dominant' to 'analyst dominant' environment through enhanced machine-to-machine integration. Will require a COP (SUTER-like) to portray non-kinetic information for planning/assessing coordinated non-kinetic operations
- Lack of codified reference documents for non-kinetic capabilities. Require a Space/cyberspace version of AFTTP 3-1, Vol 2 for standardized threat reference material to improve integration with traditional kinetic operations and planning. Requires inclusion of non0kinetic information into DoD databases (MIDB, JTDB), references, and TTPs
- Need to reduce clearance compartments to facilitate integration of space/cyberspace/IO/kinetic effects
- Need to reduce redundancy of analytical efforts to produce more focused, deeper analysis. Will require deliberate placement of personnel to optimize support to non-kinetic operations

### AFTC

- Target material standardization between combatant commands
- Sustainable target material production standards (how much is enough)
- Detailed deliberate planning (JAOPs)
- Targeting responsibilities “Lanes in the Road”
- Production and services capacity

### AMC

- Incorporation of targeting principles for weapons employment incorporated into airdrop operations
- Requirement to develop rapid support for dynamically retasked airdrop missions
- Improved planning support for leaflet/Humanitarian Relief Operations (HUMRO) mission areas
- Improved objective area analysis for airlift mission area
- Integration of Mobility Air Forces (MAF) targeting requirements into existing/future tools

### PACAF

- Inadequate target material support for OPLANs
- Inadequate imagery support for targeting
- Interoperability of targeting systems and tools with AOC architecture and allied systems
- Releasability of targeting data with coalition mission partners
- Inadequate utilization/misuse of limited targeting force

### USAFE

- Lack of combatant command targeting capability
- One set of Joint standards are necessary from an ops standpoint as we fight in a joint service/NATO/coalition environment across three continents. Lack of standardized target materials and target development processes reduces overall combat effectiveness, especially in NATO/coalition war fighting environment
- Need to better match target type to level of target development. Fixed targets (e.g., Bridges, wharfs, and runways don't move easily or frequently) target development data sets have a longer shelf life. Mobile targets need more attention and revisit as the Target development. data sets are more perishable
- AOC imagery systems are not interoperable with AF DCGS
- Improvements to 21st Century targeting cycle processes must solve the associated multi-level security and multi-level access problems

### **Appendix 3**

## **Air Force Targeting Roadmap**

### **Development Methodology**

The Air Force Targeting Roadmap effort began as a task out of the 2011 SECAF ISR Review, “Develop Air Force Targeting Roadmap to outline requirements to satisfy target folder development support to warfighters, including space and cyberspace target sets.” Senior officer discussions at the 2012 CORONA South expanded the scope beyond target folder development to address Air Force targeting shortfalls across the DOTMLPF-P spectrum. ACC/A2 is the designated OPR for this action with oversight provided by AF/A2CG, the Air Force targeting functional manager. The OCRs are all the Air Force organizations with targeting equities. Aggressive timelines and a significant amount of previous work in this area dictated an approach that built on past studies and findings from both service and joint perspectives.

ACC conducted preparatory VTCs with all the MAJCOMs and Air Force organizations with targeting equities and sought formal appointment of POCs that would be responsible for participating in the targeting roadmap development and staffing. All organizations responded with designated A2 and A3 representatives responsible for coordinating command input to the roadmap that includes unit, Component Numbered Air Force (C-NAF), and AOC targeting concerns and challenges. Formal kickoff for the Targeting Roadmap effort was an ACC/A2- hosted working group at Langley AFB, VA, 10-13 April 2012. All attendees were requested to review past studies and targeting action documents on the AFTRM Community of Practice (CoP) website to validate past findings and identify any new challenges that may have arisen in the interim. Each MAJCOM was directed to prepare and present the “Top Five” targeting challenges facing their command for binning into the focus areas for identified action. The WG was organized into sub-groups (breakout sessions) to produce the initial inputs for the five major focus areas impacting Air Force targeting: Production Requirements and Targeting Capacity; Reachback and Distributed Operations; Systems, Tools and Architectures; Training; and Force Management. The WG leads accomplished this by specifically appointing facilitators who were intimately familiar with their focus area. These facilitators ensured the sub-groups addressed the roadmap deliverables they were tasked to produce: problem statement, root causes, desired end state and specific actions. Each sub-group had broad representation to guarantee that all MAJCOM, Field Operating Agency (FOA), Direct Reporting Unit (DRU), and other targeting equities were addressed.

The WG created draft roadmap inputs based on the sub-group focus area deliverables and the previous studies and documents validated by the stakeholder reviews. Each facilitator ensured the chapter accurately reflected the discussions and concerns voiced by their sub-group. The draft then underwent an action officer-level “pre-bottom-line” review by MAJCOM-appointed A2 and A3 leads and selected WG participants. After extensive revision, the roadmap went to the MAJCOM and stakeholder organizations for bottom and top-line coordination with their respective revisions. Roadmap completion date was 30 September 2012. The roadmap will be implemented through the associated plan of actions and milestones. The POA&M is based on the tasks articulated in the roadmap and is expanded to include associated sub-tasks, resource requirements, timelines and responsible organizations.

## **Appendix 4**

### **Air Force Targeting Roadmap**

#### **Glossary**

A2A – Application-to-Application  
A2/AD – Anti-Access/Area Denial  
ACC – Air Combat Command  
ACS – Agile Combat Support  
AD – Active Duty  
ADE – Airdrop Damage Estimate  
AEF – Air Expeditionary Force  
AETC – Air Education and Training Command  
AF – Air Force  
AFC2IC – Air Force Command and Control Integration Center  
AFCYBER – Air Forces Cyber  
AFDC – Air Force Doctrine Center  
AF DCGS – Air Force Distributed Common Ground System  
AFDD – Air Force Doctrine Document  
AFGMR – Air Force GEOINT Management Roadmap  
AFGSC – Air Force Global Strike Command  
AFI – Air Force Instruction  
AFISRA – Air Force Intelligence, Surveillance, and Reconnaissance Agency  
AFMA – Air Force Manpower Agency  
AFMC – Air Force Materiel Command  
AF NTI – Air Force National Tactical Integration  
AFP4 – Air Force Precise Point Positioning Program  
AFPAM – Air Force Pamphlet  
AFRC – Air Force Reserve Command  
AFRL – Air Force Research Lab  
AFPC – Air Force Personnel Center  
AFROC – Air Force Requirements Oversight Council  
AFSAB – Air Force Scientific Advisory Board  
AFSC – Air Force Specialty Code  
AFSOC – Air Force Special Operations Command  
AFSPC – Air Force Space Command  
AFTC – Air Force Targeting Center  
AFTE – Air Force Targeting Enterprise  
AFTFP – Air Force Targeting Flight Plan  
AFTRM – Air Force Targeting Roadmap  
AFTRM WG – Air Force Targeting Roadmap Working Group  
AJP – Allied Joint Publication  
ALSA – Air, Land, Sea Agency  
AMC – Air Mobility Command

AoA – Analysis of Alternatives  
AOC – Air Operations Center  
AOR – Area of Responsibility  
APG – Aimpoint Graphic  
ARC – Air Reserve Component  
ATO – Air Tasking Order  
BDA – Battle Damage Assessment  
BIA – Behavior Influence Analysis  
BICES – Battlefield Information Collection and Exploitation System  
C2 – Command and Control  
C2AOS/C2IS – Command and Control Air Operations Suite/Command and Control Information Services  
C4I – Command, control, communications, computers, and Intelligence  
CA – Combat Assessment  
CAF – Combat Air Forces  
CAOC – Combined Air Operations Center  
CBT – Computer Based Training  
CCDR – Combatant Commander  
CCMD – Combatant Command  
CDE – Collateral Damage Estimation  
CEE – Collateral Effects Estimation  
CFACC/CJFACC – Combined Forces Air Component Commander/Combined Joint Forces Air Component Commander  
CFETP – Career Field Education and Training Program  
CFM – Career Field Manager  
CFMP – Core Function Master Plan  
CJCS – Chairman Joint Chiefs of Staff  
CJCSI – Chairman Joint Chiefs of Staff Instruction  
CJCSM – Chairman Joint Chiefs of Staff Manual  
C-NAF – Component Numbered Air Force  
CNO – Computer Network Operations  
CNODB – Computer Network Operations Data Base  
COCOM – Combatant Command (command authority)  
CoI – Community of Interest  
COIN – Counterinsurgency  
CoK – Center of Knowledge  
CONOPS – Concept of Operations  
CONPLAN – Concept Plan  
CONUS – Continental United States  
CoP – Community of Practice  
COP – Common Operational Picture  
CP&A – Capability Planning and Analysis  
CPT – Career Path Tool  
CSA – Combat Support Agency

CSAF – Chief of Staff Air Force  
CT – Continuation Training  
CYBERCOM – Cyber Command  
DIA – Defense Intelligence Agency  
DIAP – Defense Intelligence Analysis Program  
DIPF – Defense Intelligence Priorities Framework  
DL – Distance Learning  
DMS – Distributed Mission Site  
DoD – Department of Defense  
DoDD – Department of Defense Directive  
DOTMLPF-P – Doctrine, Organization, Training, Materiel, Leadership and education,  
Personnel, Facilities, Policy  
DPPDB – Digital Point Positioning Database  
DRU – Direct Reporting Unit  
DTRA – Defense Threat Reduction Agency  
EA – Electronic Attack  
EL – Eagle Look  
ELINT – Electronic Intelligence  
FAM – Functional Area Manager  
FDO – Foreign Disclosure Office  
FMS – Foreign Military Sales  
FO – Forward Observer  
FOA – Field Operating Agency  
GBTS – Greybeard Targeting Study  
GCCS-I3 – Global Command and Control System – Integrated Imagery and Intelligence  
GEOINT – Geospatial Intelligence  
GIISR – Global Integrated Intelligence, Surveillance, and Reconnaissance  
GI&S – Geospatial Information and Services  
GPA – Global Precision Attack  
GTO – GEOINT and Targeting Office  
HBSS – Host-Base Security System  
HDBT – Hard and Deeply Buried Target  
HTM – Hard Target Munition  
HTRAC – Hard Target Research Analysis Center  
HUMRO – Humanitarian Relief Operations  
IC – Intelligence Community  
IFTU – Intelligence Formal Training Unit  
IMD – Intelligence Mission Data  
IO – Information Operations  
IOP – Information Operations Platform  
IQT – Initial Qualification Training  
ISA – Intelligence Supportability Analysis  
ISR – Intelligence, Surveillance, and Reconnaissance  
IT – Information Technology

ITO – Integrated Tasking Order  
IWIC – Intelligence Weapons Instructor Course  
JAOP – Joint Air Operations Plan  
JASSM – Joint Air-to-Surface Standoff Missile  
JCIDS – Joint Capabilities Integration Development System  
JDPI – Joint Desired Point of Impact  
JFACC – Joint Force Air Component Commander  
JFC – Joint Force Commander  
JFCC-ISR – Joint Force Component Commander-Intelligence, Surveillance, and Reconnaissance  
JFO – Joint Fires Observer  
JIOWC – Joint Information Operations Warfare Center  
JITD – Joint Intermediate Target Development  
JIVU – Joint Intelligence Virtual University  
JMD – Joint Manning Document  
JMEM – Joint Munitions Effectiveness Manual  
JS – Joint Staff  
JSCP – Joint Strategic Capabilities Plan  
JSpOC – Joint Space Operations Center  
JSSC – Joint Services Staff College  
JTAC - Joint Terminal Attack Controller  
JTAS – Joint Targeting Automation Study  
JTC-FWG – Joint Targeting Cross-Functional Working Group  
JTF – Joint Task Force  
JTL – Joint Target List  
JTS – Joint Targeting School  
JTT – Joint Targeting Toolbox  
JWAC – Joint Warfare Analysis Center  
JWICS – Joint Worldwide Intelligence Communications System  
LNO – Liaison Officer  
M2M – Machine-to-Machine  
MAF – Mobility Air Forces  
MAJCOM – Major Command  
MASINT – Measurement and Signature Intelligence  
MAWG – Mission Area Working Group  
MEA – Munition Effectiveness Assessment  
MFR – Memoranda for Record  
MIDB – Modernized Integrated Database  
MQT – Mission Qualification Training  
M&S – Modeling and Simulation  
MSIC – Missile and Space Intelligence Center  
MTC – Military Targeting Committee  
MTT – Mobile Training Team  
NASIC – National Air and Space Intelligence Center  
NATO – North Atlantic Treaty Organization

NC3 – Nuclear Command and Control Communications  
NCCT – Network Centric Collaborative Targeting  
NGA – National Geospatial-Intelligence Agency  
NGB – National Guard Bureau  
NGIC – National Ground Intelligence Center  
NIPF – National Intelligence Priorities Framework  
NIPRNET – Nonsecure Internet Protocol Router Network  
NRT – Near-Real-Time  
NSA – National Security Agency  
NTI – National Tactical Integration  
NTISR – Non-Traditional Intelligence, Surveillance, and Reconnaissance  
OCO – Overseas Contingency Operations  
OCONUS – Outside Continental United States  
OCR – Office of Collateral Responsibility  
OJT – On the Job Training  
OOD – Operation Odyssey Dawn  
OPLAN – Operation Plan  
OPR – Office of Primary Responsibility  
OPSTEMPO – Operations Tempo  
PACAF – Pacific Air Forces  
PCS – Permanent Change of Station  
PED – Processing, Exploitation, and Dissemination  
PGM – Precision Guided Munition  
PLANORD – Planning Order  
PME – Professional Military Education  
PO – Program Office  
POA&M – Plan of Actions and Milestones  
POM – Program Objective Memorandum  
PPM – Precise Point Mensuration  
R&D – Research and Development  
ROC – Regional Operations Center  
ROMO – Range of Military Operations  
SAP – Special Access Program  
SAR – Special Access Required  
SBIRS – Space-Based Infrared System  
SCI – Sensitive Compartmented Information  
SDB – Small Diameter Bomb  
SECAF – Secretary of the Air Force  
SEI – Special Experience Identifier  
SIGINT – Signals Intelligence  
SIPRNET – SECRET Internet Protocol Router Network  
SME – Subject Matter Expert (ise)  
SOF – Special Operations Forces  
SOP – Standard Operating Procedure

STE – Secure telephone Equipment  
STO – Special Technical Operations  
STRATCOM – Strategic Command  
TAO – Tailored Access Operations  
TBMCS – Theater Battle Management Core Systems  
TDN – Target Development Nomination  
TM – Target Material  
TPR – Test Problem Report  
TRB – Tactics Review Board  
TSA – Target System Analysis  
TSG – Targeting Steering Group  
TTP – Tactics, Techniques, and Procedures  
TWAC – Targeting Weaponeering Assistance Cell  
UFAC – Underground Facility Analysis Center  
UJTL – Universal Joint Task List  
USAF – United States Air Forces  
USAFE – United States Air Forces in Europe  
USMTF – United States Message Text Format  
UTC – Unit Type Code  
VCJCS – Vice Chairman, Joint Chiefs of Staff  
VOIP – Voice Over Internet Protocol  
VTC – Video Teleconference  
WEPTAC – Weapons and Tactics Conference  
WG – Working Group  
WMD – Weapons of Mass Destruction

## **Appendix 5**

### **Air Force Targeting Roadmap**

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