DEPUTY CHIEF OF STAFF, INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE

WHITE PAPER

REVOLUTIONIZING AF INTELLIGENCE ANALYSIS

January 2014

Revolutionizing AF Intelligence Analysis

1. Purpose

(U) In January 2013, the Air Force (AF) Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance (ISR) held an offsite with senior officers, civilians, and enlisted members from across the AF ISR enterprise. Using lively, critical discussions of AF, Department of Defense (DoD), national, and Intelligence Community (IC) strategy and guidance as background, this group established the AF ISR priorities and goals that will advance the AF ISR Enterprise into the next era. One of the five priorities the group established was "Revolutionize Analysis and Exploitation." Since that time, the importance of *analysis* to the future of AF ISR has gained considerable traction. Through efforts such as the AF ISR 2023 briefing (Mar 13) and the recently released ISR Strategic Vision (Sept 13) "analysis" has only become more prominent as a keystone for the future. The purpose of this White Paper is to further explain this priority: to identify the motivations, present a lexicon, explore key issues, and outline the way ahead for analysis.

2. Motivations for Change

First: Establishing standards, tradecraft, and collaboration

(U) The 9/11 attack was undoubtedly a watershed event in US history. In addition to the well-known procedural and governmental changes that occurred in its aftermath, the impact on the US Intelligence Community (IC) has been far-ranging and unprecedented. As many of the commissions, studies, and investigation identified in their post-event reviews, many of the failures of 9/11 were directly attributable to the lack of analytic training and education – along with the absence of community standards, shared processes, information sharing, and collaboration. In 2004, following a number of commissions, studies, and investigations, the Intelligence Reform and Terrorist Prevention Act (IRTPA) mandated a broad set of recommendations – many of which concerned intelligence analysis and analysts.

(U) In 2006, the Office of the Director of National Intelligence (ODNI) began an ambitious program called Analysis Transformation. This program focused on further professionalizing the field of intelligence: setting shared standards and practices; creating and implementing training and education for all-source analysis; and enabling greater collaboration both in daily practice and institutional process. Despite this effort, as of 2013, the AF continues to lag behind the progress of the greater IC in implementing DNI guidance in these areas. To close the gap, AF ISR must achieve success by professionalizing ISR analysis through training, tradecraft (understood in military terms as TTP or tactics, techniques, procedures), and collaboration.

Second: Rebalancing and restoring AF analytic competence and specialties

(U) Through a wide range of conferences, studies, and assessments, senior leaders in AF ISR have voiced concern about the impact of irregular warfare (IW) on the AF ISR Enterprise's ability to conduct and support operations across the entire spectrum of conflict. In April 2013,

HAF/A2 conducted a comprehensive review of all-source analysis and production within the AF ISR Enterprise. Utilizing a senior officer survey and the results of reports on the state of wing intelligence conducted by both Air Combat Command and Air Mobility Command, a number of fundamental recommendations about analysis were presented to HAF/A2 in July 2013.

Word Cloud of Senior ISR Survey Results
(size reflects frequency mentioned in surveys)

(U) The results of the review revealed AF ISR leaders generally believe their organizational analytic capabilities meet operational requirements and intelligence needs across the range of military operations (ROMO), and customers are normally satisfied with their analysis. At the same time, leaders assess an overall decline in this core competency and believe AF-wide analysis and support must be improved. The decade of focus and high deployment dwell on irregular warfare priorities in permissive environments has degraded competence for air component missions and denied environments. There is an undeniable need to rebalance AF ISR capability across the spectrum of conflict. Many leaders highlighted increasing unease over the ability of analysis to support planning and future contingencies and cited concerns for continuing or re-establishing AF prominence in many of the skillsets needed for major contingency operations. Finally, many are concerned that the roles and responsibilities of our component ISR units – and their relationships to joint and national organizations – are not defined or understood.

(U) Altogether, the sense from ISR leaders is that we require a focus on Air Force specific analysis – across the areas of standards, tradecraft, and collaboration – and that we need it soon.

- Standards: increased training; unified policy and AFIs; functional management
- Tradecraft: TTPs; layered analysis (organizational roles and responsibilities); AF production program; reestablished expertise in targeting, IADS, tactics
- Collaboration: enterprise architecture; access to data; evaluation and feedback

Third: Increasing capacity and relevance through a new analysis paradigm

(U) Since 2011, the Department of Defense has faced decreasing budgets; a trend that will likely continue into the foreseeable future. The impact of fiscal austerity combined with AF ISR's need to support operations across the ROMO places increasing importance on sound ISR strategy and planning. Similarly, the characteristics of the intelligence environment since 2000 suggest fundamental change is necessary: an ever-larger *volume* of data; widening *variety* (classic intelligence sources, new sensors and types of data, and open sources); increasing *velocity* (more data and information in motion, every day); and more complex *veracity* (data duplication, identity, authenticity, and the resolution of each). As one senior intelligence leader put it, "Simply stated, in addition to their many other challenges, IC analysts must contend with more requirements from more customers, and must answer more difficult questions more quickly and with greater precision than ever."[1]

Big Data Analysis Enterprise – Tomorrow

(U) Under these conditions, the only means to increase ISR capacity and relevance is to adopt a new model of intelligence analysis and production. Our collection and analysis paradigm of today – often called the intelligence process and articulated as PCPAD[2] – must radically evolve

[1] Dr. Tom Fingar, "Analysis in the US Intelligence Community," Ch 1 of Intelligence Analysis: Behavioral and Social Scientific Foundations, p.7, http://www.nap.edu/catalog/13062.html.

[2] PCPAD (Planning and Direction, Collection, Processing and Exploitation, Analysis and Production, and Dissemination) replaced the term TCPED (Tasking, Collection, Processing, Exploitation, and Dissemination) in the 6 January 2012 version of AF Doctrine Document 2-0, *Global Integrated Intelligence, Surveillance, and Reconnaissance Operations*.

towards a Big Data model. The Big Data model treats all intelligence collection as sources of meta-tagged data accessible across multiple domains, organizational, and security divides from which analysts – trained in all-source techniques and methods – can discover, assess, and create relevant knowledge for commanders and decision makers at all levels. At its core, this new model "flips" analysts from single-source to multi- and all-source analysis where they use multiple sources to discover relevant activities, people, and events and create dynamic, new knowledge for decision makers.

(U) Transforming the AF ISR Analysis Enterprise to this new paradigm will require significant change. The foundation of a Big Data approach lies with the information architecture; fully participating in both the Joint Information Environment (JIE) and IC Information Technology Environment (IC-ITE) will be essential. Additionally, we must address data access and releasibility authorities and processes, the tools and knowledge management systems which enable big data analysis, and the training of the analysts themselves to embrace discovery and knowledge creation.

3. A Lexicon for Intelligence Analysis

(U) One of the more surprising facts about intelligence analysis is the complete absence of shared definitions across the IC. Even in the most recent JP 2-0, Joint Intelligence, intelligence analysis is not in the glossary; in addition, multi-source and fusion analysis are ill defined, and intelligence analysis standards and activities are not in synch with IC guidance and initiatives.[3] This lack of codified definitions creates confusion across the IC as each organization has different standards and expectations for intelligence analysis. In an attempt to standardize the lexicon, the next section of this paper will outline definitions and descriptions for each.

(U) A search across the Services and IC for the definition of intelligence analysis will reveal some common elements. The common elements include recognizing analysis as a cognitive activity; the use of various tools and methods; purposes of answering questions, evaluating, assessing, and warning; and end objective of creating knowledge and decision advantage (opportunities) in national security contexts. Using these elements, we propose an Air Force definition of intelligence analysis as:

> **Intelligence analysis** is a cognitive activity – both art and science – applying tools and methods to collected data and information to create and deliver intelligence knowledge, with the goal of providing decision advantage to commanders and decision makers.[4]

[3] Many people use the foundational JP2-0 definition for "intelligence production" as a definition of analysis (integration, evaluation, analysis and interpretation of information) for this reason. The publication's discussion of multi-source and fusion analysis does not distinguish it from all-source. Finally, the intelligence standards outlined in JP 2-0 are not in synch with Intelligence Community Directive 203, Analytic Tradecraft Standards.

[4] This definition is in synch with current DIA proposal for the definition of an analyst as one who synthesizes information from one or more sources through processing, exploitation, or analysis to produce intelligence to inform or to provide decision advantage for defense or national policymakers (ODNI Analyst/Collector Count Briefing, Oct 13).

(U) Intelligence analysis is a transformation of data and information into knowledge. This transformation includes numerous reasoning activities—human-dependent thinking—including discovery, interpretation, assessment, pattern recognition, evaluation, integration and synthesis. Our definition emphasizes that these reasoning activities are both art and science, and can be amplified by the use of tools and methodologies. As figure I-1 from JP 2-0 shows, intelligence collection produces data, processing and exploitation produce information, and analysis creates knowledge which we call intelligence.[5]

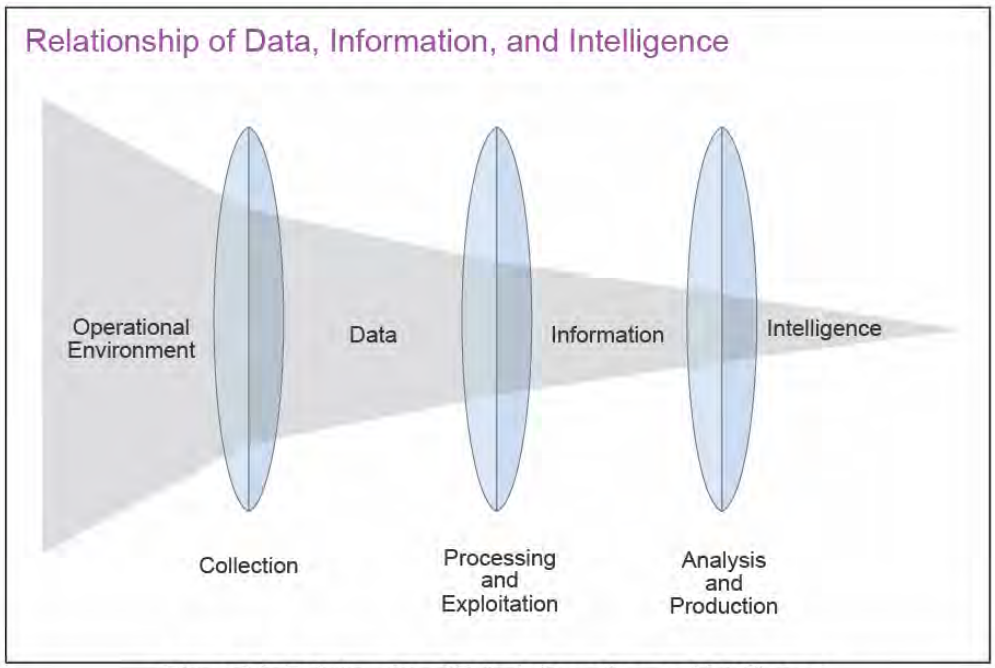


Figure I-1. Relationship of Data, Information, and Intelligence

(U) A definition is most useful in determining not only the kind of activity one is characterizing, but also the qualities and skills that must be developed to create this kind of capability. In this case, to create analysts we must: train, educate, and provide experience to people in critical thinking and reasoning (cognition); mentor and guide them in the craft (art) and teach and use logic and structured techniques (science); expose and train them on systems (tools) and tradecraft (methods); orient and inculcate understanding of sources (data and information); and practice and exercise delivery of their results (create and deliver knowledge) with feedback and evaluation. All of these become objectives in our force development for analysis as a critical AF ISR capability.

(U) What follows from a definition of intelligence analysis, however, is a need to specify what we mean by "all-source, multi-source, single-source, and fusion analysts." These categories of intelligence analyst are generally accepted as encompassing most, if not all, of the analysts in the AF ISR enterprise. Using the general definition of analysis (see above), we propose these standards:

[5] JP 2-0, 22 Oct 13, p. I-2. Interestingly, the closest JP 2-0 comes to defining processing and exploitation is the sentence "They must also ensure raw data is routed to the appropriate processing and exploitation system so that it may be converted into useable information and disseminated to the user in a timely fashion"; p. I-11 para (b).

- **All-source Analyst**: Performs intelligence analysis using all available sources of data and information enabling the creation of new intelligence
- **Multi-source Analyst**: Performs intelligence analysis using more than one source; access to all available sources is limited by reasons of timeliness, system access, location, or security levels
- **Single-source Analyst**: Performs intelligence analysis with one source, or expertise in a functional area, to characterize events, people, or things
- **Fusion Analyst**: Performs intelligence analysis in a time-sensitive environment, using more than one source, to meet a specific operational need[6]

(U) Defining what analysts do is a more challenging task as there are many competing conceptions and perspectives in the IC. The current ODNI National Intelligence Strategy proposes there are three categories of analyst activity: *Strategic Intelligence* which informs and enriches understanding; *Current Operations* which supports ongoing planning and activities; and *Anticipatory Intelligence* which identifies, warns and forecasts.[7] While this is useful and consistent – it is very similar to what Sherman Kent of the CIA proposed in the 1960s – AF ISR operates in a joint context. The Joint Capability Area (JCA) for Battlespace Awareness defines ISR in terms of PCPAD: Planning and Direction; Collection; Processing and Exploitation; Analysis and Production; and Dissemination. It then further defines Analysis and Production as five activities[8]:

- **Discovery**: The ability to identify, select, assimilate and correlate relevant information from single or multiple sources.
- **Assessment**: The ability to provide focused examination of the information, classify, categorize, assess reliability and credibility, and integrate into estimates.
- **Explanation**: The ability to derive knowledge and develop new insight from gathered information to postulate its significance.
- **Anticipation**: The ability to warn and describe anticipated future states of the environment based on the depiction of past and current information.
- **Delivery**: The ability to develop, tailor and present intelligence, information, and environmental products and services per customer requirements.

(U) While assessment, explanation and anticipation retain the same enduring importance as the national categories of current operations, strategic intelligence, and anticipatory intelligence (respectively), the joint categories of discovery and delivery highlight increasingly important analytic activities of military ISR. Discovery of relevant events and things is critical in time-sensitive, operational environments coping with a deluge of data and information. Delivery is

[6] This definition adapts one proposed by Lt Gen Flynn in Flynn, Michael T. and Charles A. Flynn. "Integrating Intelligence and Information: "Ten Points for the Commander." Military Review, vol. 92, no. 1 (2012): 4-5. It improves the JP 2-0 definition (p. II-12, JP 2-0, 22 Oct 13) which essentially equates fusion with all-source analysis, only focusing its impact on specific target activities (which we clarify as operational needs).
[7] The 2014 National Intelligence Strategy of the US, DRAFT, 2014 NIS REL FVEY 20131017.pdf, p. 9.
[8] JCA BA uses different titles or labels for these five activities, which we have updated for consistency with IC terminology in use today. The original five labels are Integration, Evaluation, Interpretation, Prediction, and Product Generation. Interestingly, JP 2-0 Oct 13 treats prediction as a 'feature' of intelligence rather than an activity or function.

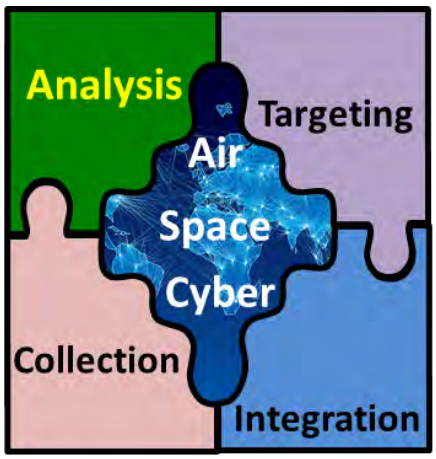
equally challenging as analyst interaction with customers is shifting from written products, databases, and briefings towards near-real-time chat, operational displays of data, and user-driven tablet devices, applications, and computer-based presentation of knowledge.

4. Key Intelligence Analysis Issues

(U) The Air Force has been engaged in numerous studies of ISR over the past five years. These studies were focused primarily on exploring ways by which AF ISR can best orient for future operations. Many of the studies' findings identified "analysis" as an area that will need significant improvement if AF ISR is to maximize its capability in the future. The results of these studies contributed to AF ISR senior leadership's dedication to "revolutionize" analysis and coalesce around four key issues of analysis as a capability: Standards and Training; Products and Services; Tools; and a Layered Enterprise.

Standards and Training

(U) As outlined in the 14N Career Field Education and Training Plan (CFETP), analysis is one of the four AF ISR core competencies.[9] With the renewed emphasis on analysis, AF ISR has begun several critical revisions to entry training (both 14N, 1N, and 1A8 common core) and has pursued implementation of initial skills and advanced analysis courses that integrate intelligence community standards. While progress in the entry courses has been successful, implementation of the current initial and advanced skills courses present another challenge: they are focused on training Airmen going into analysis dominant positions, not the whole AF ISR workforce. Since Analysis is a core competency that enhances collection, targeting, and ops integration, we must also address development of this capability at higher than entry levels.



Four ISR Core Competencies

[9] AFSC 14NX Intelligence Officer Career Field Education and Training Plan, p. 9.

Products and Services

(U) During a National Intelligence Analysis Board meeting in Oct 2013, the DIA representative stated that "we are completely redefining what production means." In support, another agency representative added that "production begins at the point we discuss the information requirements of the user … not at the point of delivery." Both of these observations are in synch with the AF Analysis and Production survey of senior ISR officers, where a fundamental finding is that "our analysts and their leaders do not share a common understanding of what we deliver and with what priority." Taken together with conclusions from AF ISR 2023 and the A2 Strategic Vision, there are two challenges for AF ISR with respect to products and services: first, gaining understanding that production today is dominated by services (such as common operating pictures, information flows, dynamic data base updates, voice calls and chats) but still includes traditional products (target folders, briefings, estimates, assessments, reports); and second, establishing a collective meaning to what AF production is, and what priorities we should apply against the many services and products required.[10]

(U) Addressing these issues will require a number of actions. First, our enterprise must define enduring ISR contributions and establish categories of products and services. The Global Integrated ISR (GIISR) Core Function Master Plan (CFMP) proposes there are five categories of ISR production: Battlespace Characterization; Find, Fix and Track; Targeting; Intelligence Mission Data (IMD); and Support to Acquisition.

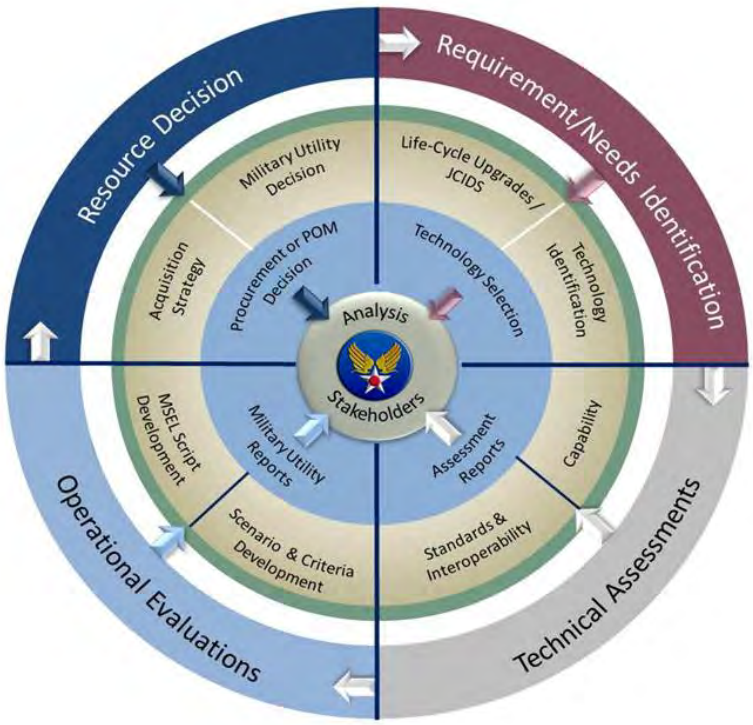
Core Function Master Plan:
Five AF Production Categories

Corresponding to these five areas are a number of common AF ISR products or services. What must come next is definitions of who does what (ISR CONOPs), with what priority and/or planning (AF Program of Analysis), and according to which standards (AF implementation of IC and AF-specific evaluation programs).

[10] JP 2-0, even in its latest publication (Oct13) is lagging behind the IC by defining production as resulting in finished intelligence, rather than recognizing the variety of intermediate products—and services—that necessarily are also the outputs of analysis and intelligence.

Tools

(U) For too long, the inability to quickly field new analysis tools has been a serious handicap to AF ISR. This inflexibility led to the Secretary of the Air Force task in late 2011 to produce an ISR analysis tools roadmap that would address the need to develop new, comprehensive analytic tools. While the task was originally focused on "visualization" and "automation" tools, the Roadmap team's analysis led to a wider scope that: 1) included all enterprise analysis; 2) included the acquisition and staff processes needed to address tools; and, 3) addressed the analysis training necessary to enable tool effectiveness. The Roadmap culminates in a "to-do" list of major recommendations for the next five years and beyond. What must follow is development of a program of action with milestones, by an enterprise-level Analysis Capability Working Group.



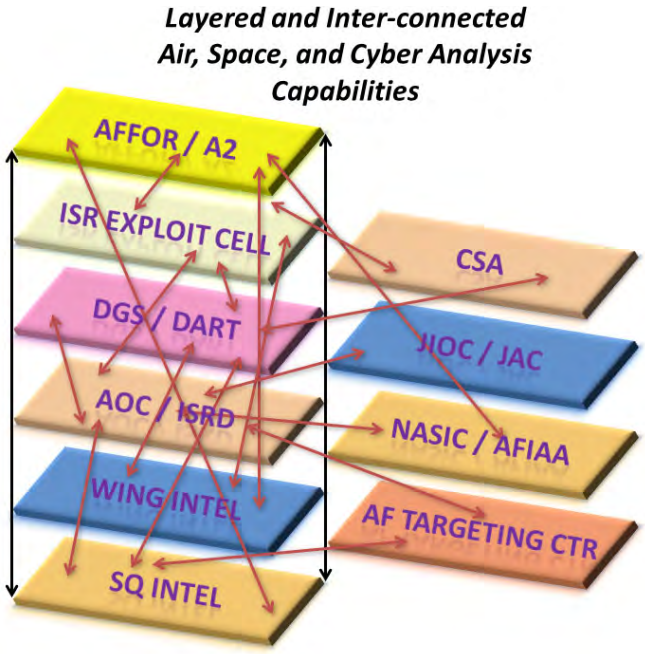
Analysis Tools Process

Analysis Enterprise as Layered Capability

(U) Intelligence analysis is a team sport – much more than a capability practiced merely by individuals. The ISR analysis enterprise consists of a variety of organizations with differing roles and responsibilities. There have been two major influences on the evolution of AF analysis since the Goldwater-Nichols Act of 1986, which marked the beginnings of modern joint war fighting. The first was a contraction of service specific capabilities in favor of joint and component command organizations, such as Joint Intelligence Operations Centers (JIOCs) and Air Operations Centers ISR Divisions (AOC/ISRD). Both organizations conduct all-source and fusion analysis – often looking at the same problem sets – which has unnecessarily diluted the Service's ability to provide analysis to war fighters. The second major influence on the evolution

of AF analysis has been the wartime expansion of Processing, Exploitation and Dissemination (PED) units and ISR Exploitation Cells (ISREC) whose activities centered on multi-source, single-source, and fusion analysis, along with a greatly increased role for combat support agencies (CSAs) such as Defense Intelligence Agency and the National Security Agency with all-source and multi-source support to theater operations.

Analysis Enterprise: Layered Capability



(U) The result has been a blurred understanding of organizational roles and responsibilities, and an increasingly complex process for allocating capability in accordance with mission requirements and collection assets. Some capabilities – such as DCGS Analysis and Reporting Teams (DARTs) and National-Tactical Integration (NTI) cells – have proved to add great value to theater intelligence, while at the same time having unclear relationships to the joint intelligence structure. Other capabilities, such as Distributed Mission Sites (DMS) of the National Air and Space Intelligence Center (NASIC) and the Air National Guard (ANG), have bolstered the ability to meet multi-theater requirements but have complicated steady state planning.

(U) As we move the AF ISR Analysis Enterprise forward, several questions must be answered:

- What is the best arrangement of analysis 'units' – from squadron and wing through AOC/ISRD and DCGS and the AF Targeting Center to joint JIOCs and national centers – that presents a coherent ISR capability?
- How does AF ISR present analysis to the Combined Forces Air Component Commander (CFACC)?
- What allocation of roles and responsibilities will create the most effective, largest-capacity ISR capability?
- Where do we plan for single and multi-source analysis to take place, and where are our all-source analysts?

These questions comprise the most important issues in creating our ISR 2023 force structure. To continue the revolution of AF ISR, we must make decisions for each question, stand by the decision, and make the necessary enterprise-wide changes to implement each decision.

5. A Concise Way Ahead

(U) To "revolutionize" is to change something radically or fundamentally. The needs for AF intelligence analysis – to professionalize, to re-establish air and space expertise, and to transform to a new paradigm – are both radical and fundamental in nature. The dynamic security environment, pivot in national strategy, and constraints in resources provide the opportunity to revolutionize AF intelligence analysis and expand both the capacity and competence of AF ISR. To get there, we must:

- Recognize and treat **analysis as a capability**.
  - Develop and use a common terminology and lexicon.
  - Advocate and resource for analysis on a par with any platform or sensor.
  - Develop and manage our Airmen to be the best at, and promulgate headquarters policy that sets standards for, analysis.
- Activate, charter, and demand a cross-MAJCOM **Analysis Capability Working Group**.
  - Task the working group to produce an aggressive program of action & milestones (POAM) that incorporates the ten 'big rocks' of the Analyst Tools and Training Roadmap into the POAM.
  - Ensure the working group members are knowledgeable and experienced AF analysts.
- Transform today's analysis workforce and units into a **premier Analysis Enterprise**.
  - Create the architecture, access, tools and training to enable it.
  - Rationalize and communicate the roles, responsibilities and production of a layered capability.

Summary

The advance of technology has set the conditions for the next evolution in all-source analysis. More data is available now than at any time in our past; the challenge for AF ISR is how to develop our personnel to best use the data available to produce decision advantage for commanders and decision-makers. Developing our analytical personnel, building information architecture, and designing analysis tools will be our focus areas for the next several years. We believe these initial actions will set AF ISR on the right course for success in the challenges of tomorrow.

ROBERT P. OTTO, Lt Gen, USAF
Deputy Chief of Staff, Intelligence, Surveillance,
and Reconnaissance