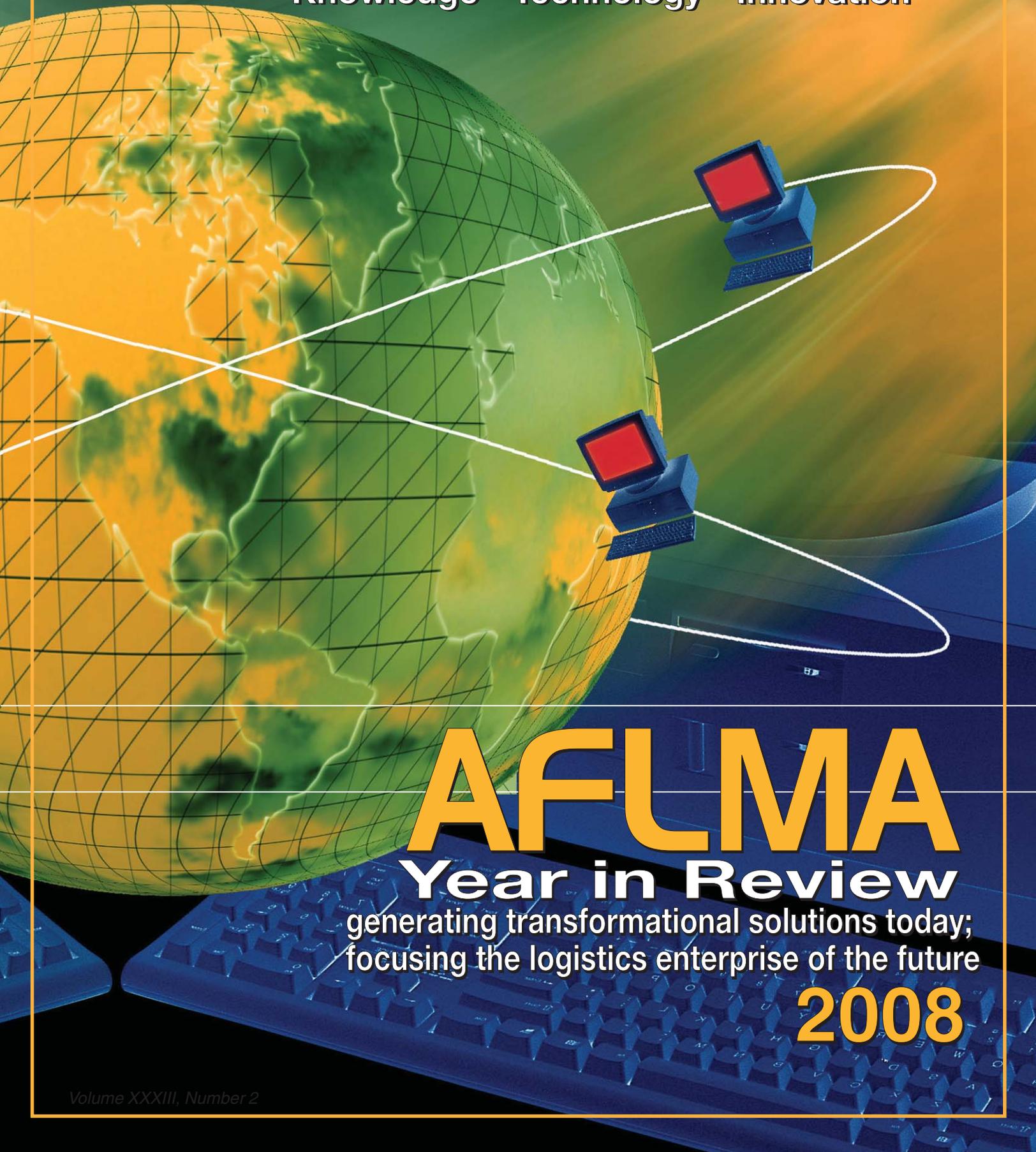


# Making the Vision a Reality

Knowledge - Technology - Innovation



# AFLMA

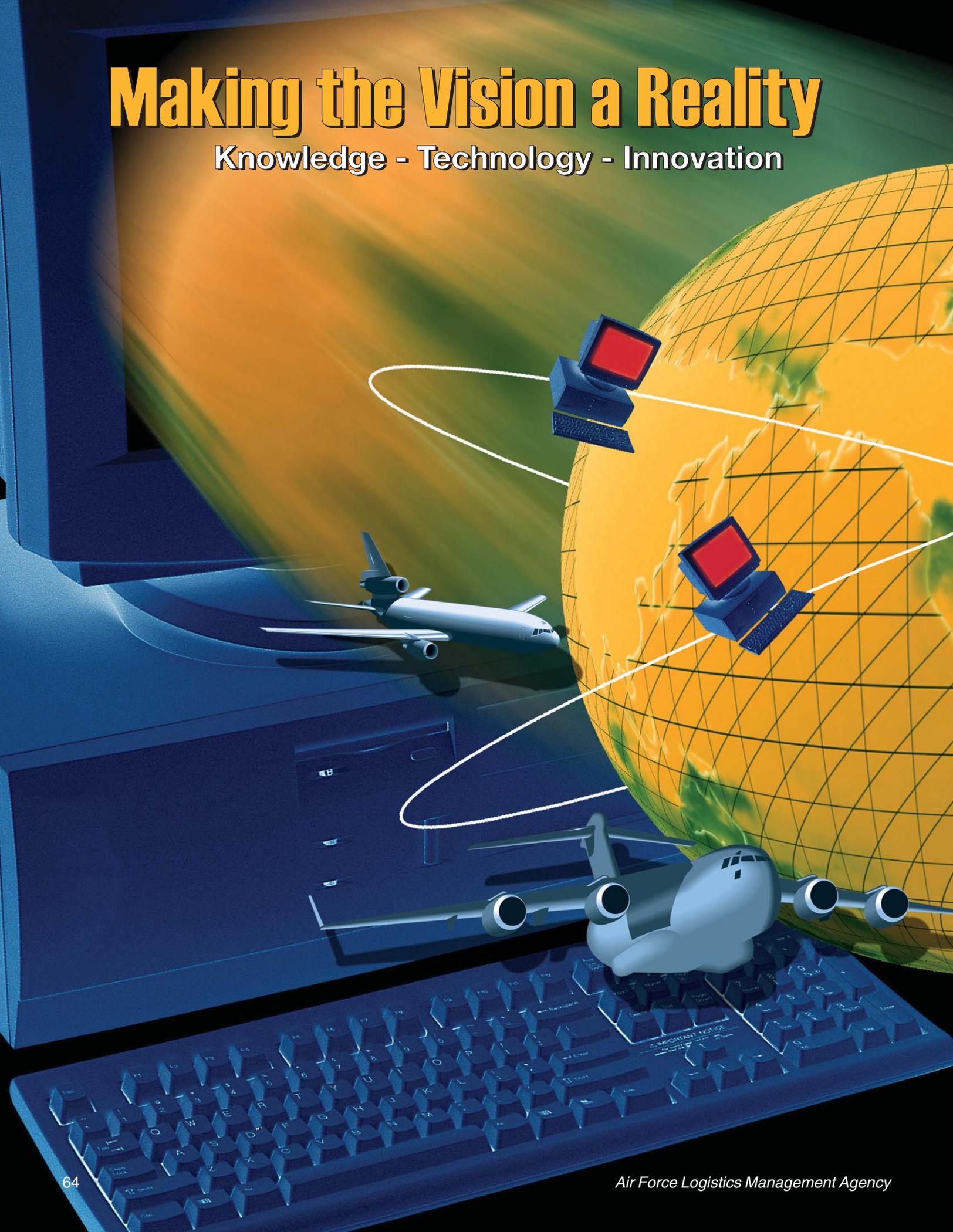
## Year in Review

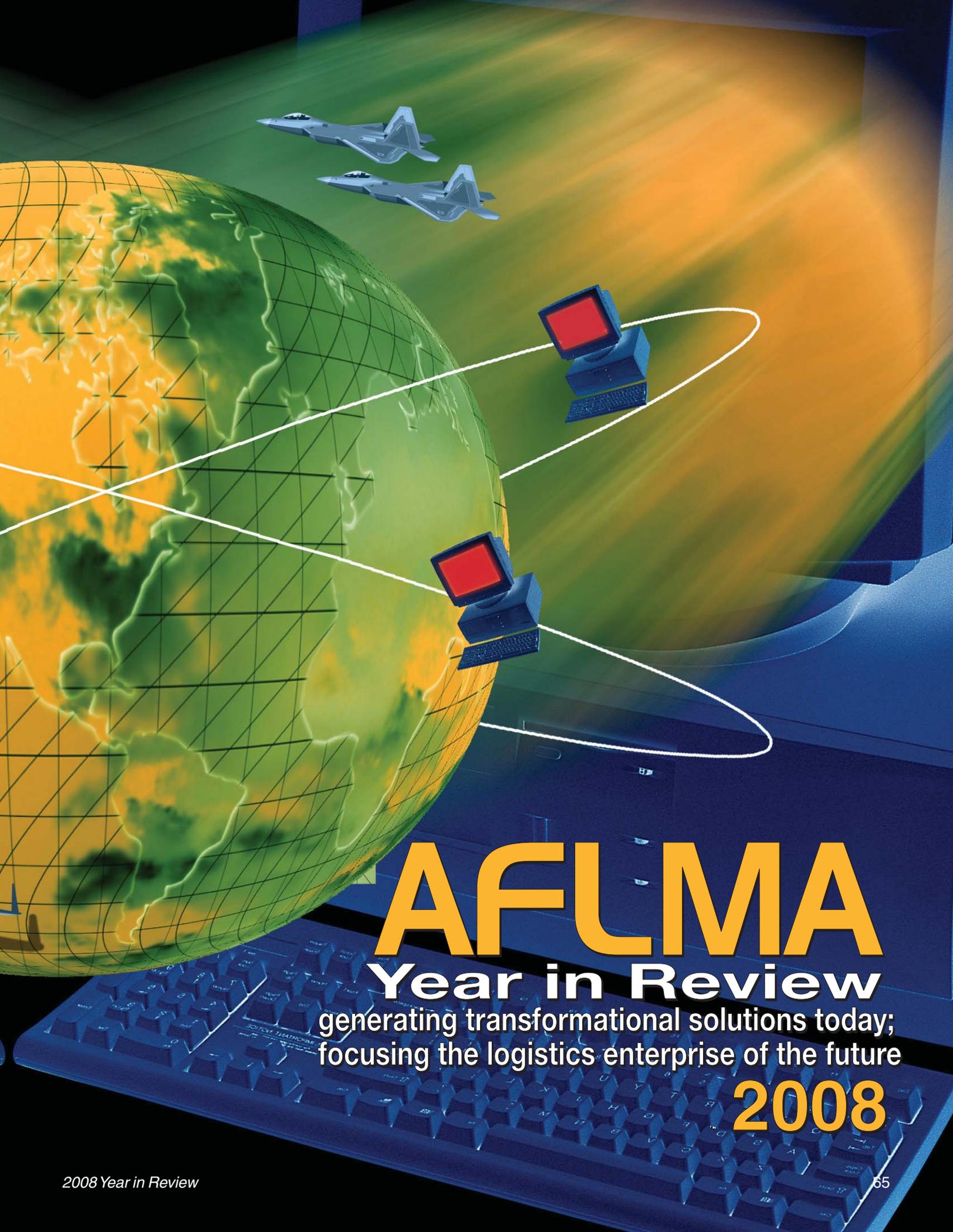
generating transformational solutions today;  
focusing the logistics enterprise of the future

# 2008

# Making the Vision a Reality

Knowledge - Technology - Innovation





# AFLMA

## Year in Review

generating transformational solutions today;  
focusing the logistics enterprise of the future

# 2008

# departments

# AFLMA

## 2008 in Review

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**James C. Rainey**  
Editor-in-Chief, *Air Force Journal of Logistics*

**Cindy Young**  
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**Roger D. Golden, DPA**  
Director, AFLMA

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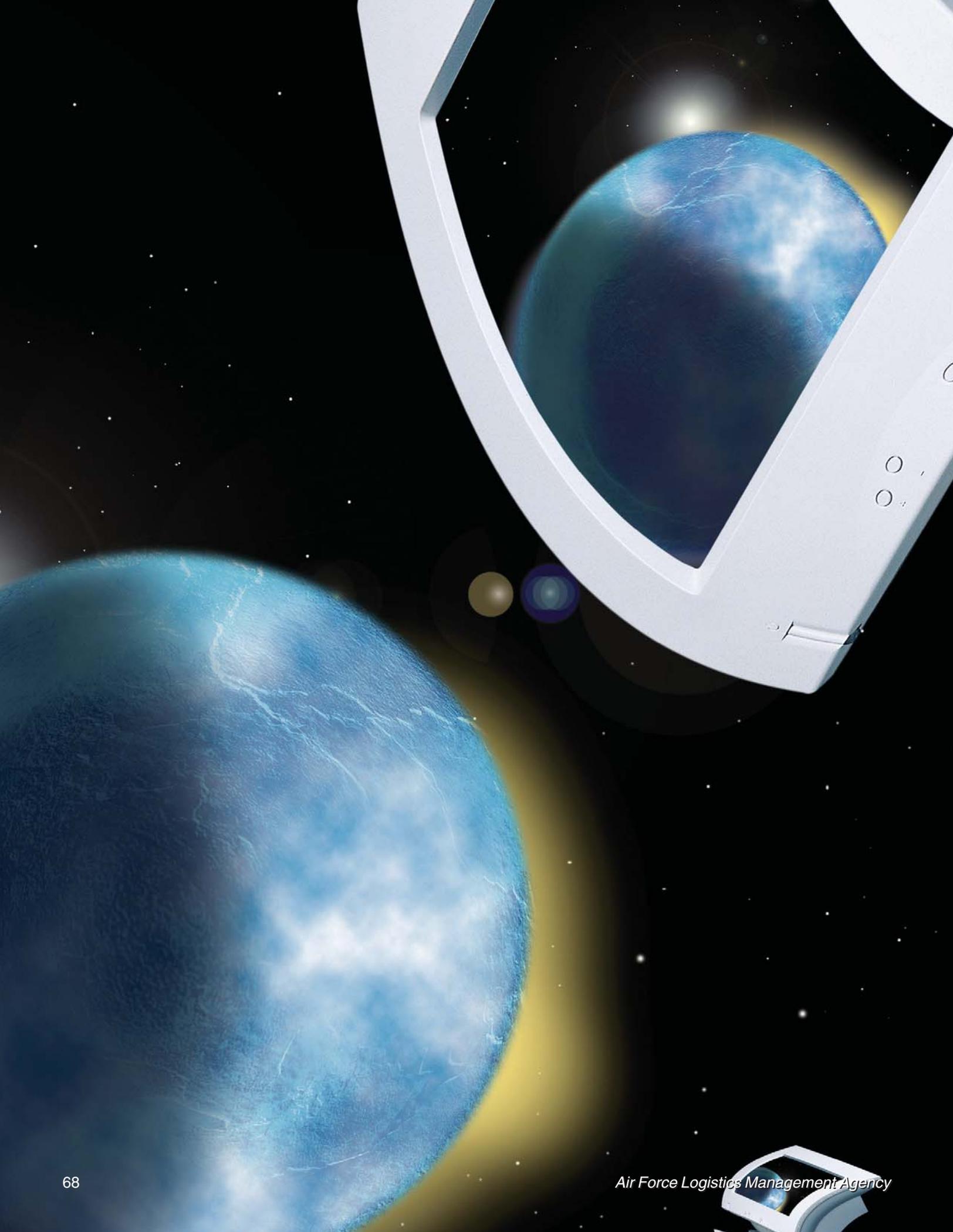
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## **AFLMA**

2008 in Review



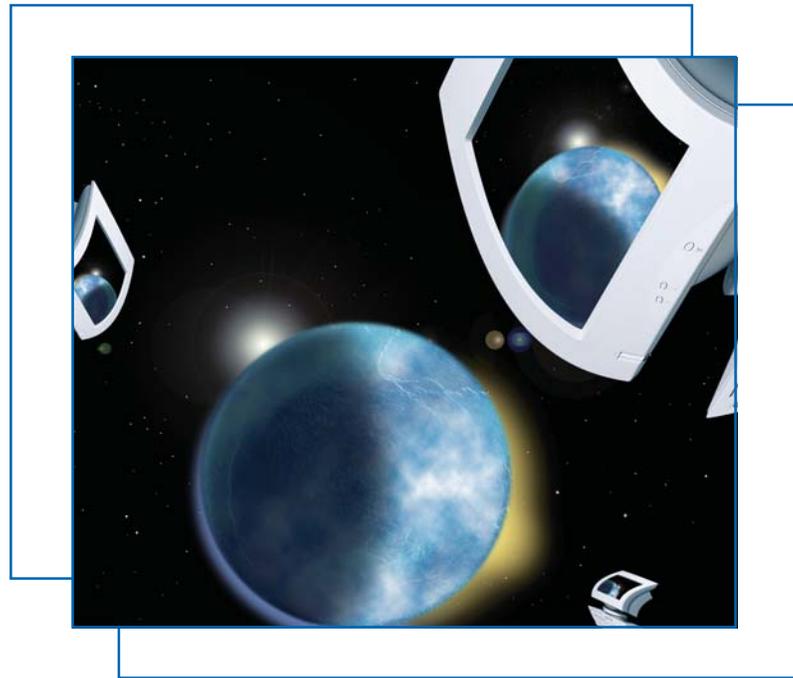
*Our Continuing*

# **Knowledge, Technology, Innovation!**

*Commitment*

You won't find lots of fancy words in the pages that follow. As you'll soon notice, this review gets right to the point. That's part of our commitment to you—the most demanding customers in the world need to know what we're doing to solve their problems, and they need to know now.

**GENERATING TRANSFORMATIONAL  
SOLUTIONS TODAY; FOCUSING THE  
LOGISTICS ENTERPRISE OF THE FUTURE**



# Our

**G**enerating transformational solutions today; focusing the logistics enterprise of the future is what the Air Force Logistics Management Agency is all about. This statement conveys our strength and energy.

Our track record puts us in the lead in delivering robust, tailored answers to the most difficult and complex Air Force logistics problems. This can be seen in our efforts and partnerships that are turning expeditionary airpower support concepts into real-world capability. It also can be seen in our work in making dramatic improvements to the Air Force supply system and developing high-impact logistics publications as well as

our leadership in planning and making logistics play in wargames, simulations, and exercises truly meaningful. It's also the reason the Agency is a key player in Air Force logistics transformation and in our role as the enterprise architect and analytical checkpoint for the supply chain sustainment process. The message is also loud—we work the important projects that shape tomorrow's Air Force, and we deliver what our customers need today!

The Agency continues to aggressively reach out to its customers. We're not just attending conferences and meetings—in many cases, we're leading them. We have enhanced our World Wide Web (WWW)

# Continuing Commitment

*Generating Transformational Solutions Today;  
Focusing the Logistics Enterprise of the Future*

site to improve customer support, and we've made many of our products available on other WWW sites. At the same time, we've expanded our role and efforts associated with Expeditionary Logistics for the 21<sup>st</sup> Century and provided critical support to the Logistics Transformation Office.

In addition, many of the logistics education publications created by the *Air Force Journal of Logistics* staff have become best sellers Department of Defense (DoD)-wide. Of particular note is *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*, which has become the standard contingency

contracting handbook across the DoD. Other AFLMA publications are used as course materials in professional education settings. We have even had requests from several of our allies to use some of these materials in their professional military education programs.

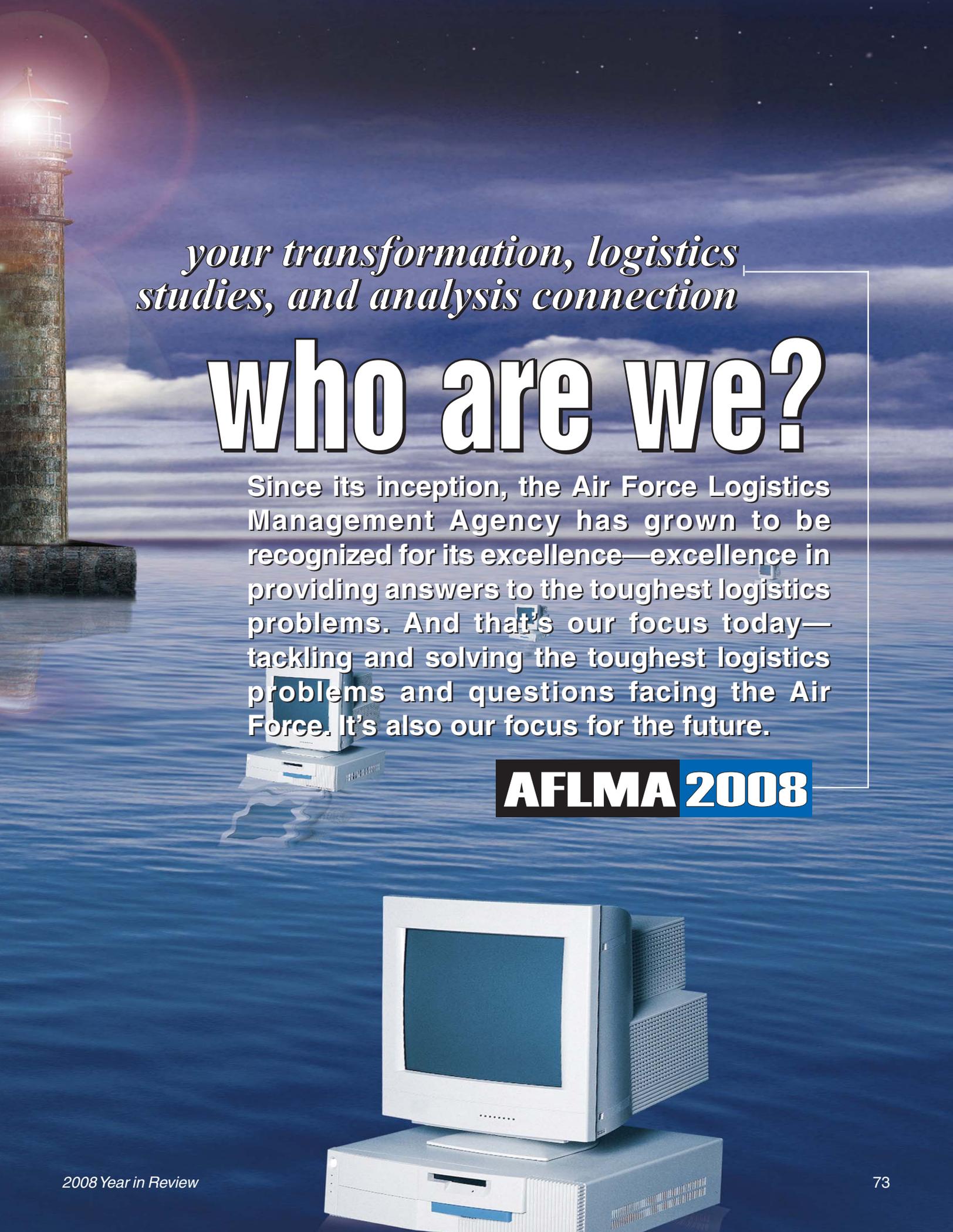
We've continued our work with LMI in transforming and modernizing supply chains and with RAND in developing expeditionary airpower support concepts. The AFLMA will have a key role in shaping and implementing transformation within the Air Force Logistics community.

**We've delivered on commitments to our customers, we've partnered with academia and industry, we've had high impact in shaping the support concepts of tomorrow, and the Air Force is benefiting from the synergy of our efforts. We've been on target—you can count on that continuing.**

**R. Dean Golden, DPA, Director**



**Generating Transformational Solutions Today;  
Focusing the Logistics Enterprise of the Future**



*your transformation, logistics  
studies, and analysis connection*

# who are we?

Since its inception, the Air Force Logistics Management Agency has grown to be recognized for its excellence—excellence in providing answers to the toughest logistics problems. And that's our focus today—tackling and solving the toughest logistics problems and questions facing the Air Force. It's also our focus for the future.

**AFLMA 2008**



## Mission

*To sharpen agile combat support (ACS) capabilities by generating enterprise supply chain solutions, supporting logistics transformation through research, analysis, wargames, and publication of ACS literature.*

The mission of the AFLMA flows directly from the Air Force mission “to fly, fight and win ... in air, space and cyberspace.” While supporting all Air Force goals, the AFLMA mission will contribute specifically to Air Force Strategic Plan goals 2) “sustain air, space, and cyberspace capabilities” and 7) “foster Air Force Smart Operations across the Total Air Force.” The AFLMA mission is also a direct reflection of the AF A4I mission.

In accomplishing the AFLMA mission stated above, the AFLMA will fulfill *Air Force Mission Directive [MD] 33* (13 November 2002) which states:

The mission of the AFLMA is to consult, conduct studies, manage Air Force logistics wargaming participation, and develop DoD [Department of Defense] and civilian partnerships to support the development of policy and identify the resources needed to deliver ACS across the full spectrum of operations. The AFLMA produces solutions to logistics problems and designs new and improved concepts, methods, and systems to improve overall logistics and combat capability. Also, the AFLMA publishes the *Air Force Journal of Logistics* and other publications on logistics issues.

## **Generating Transformational Solutions Today; Focusing the Logistics Enterprise of the Future**

**AFLMA 2008**

# **who are we?**

*your logistics studies and analysis connection*

In order to meet the logistics needs of a transforming Air Force, AFLMA's mission has expanded beyond the mission stated in MD 33 in 2002. The Air Force Logistics Board of Advisors (LBOA) has directed that, while continuing to perform the core functions described in MD 33, AFLMA will also become the owner of the Logistics Enterprise Architecture (LogEA). As the Air Force implements various initiatives under Expeditionary Logistics for the 21st Century (eLog21), the AFLMA will ensure compliance of those initiatives with the tenets of LogEA.

The expanded mission of the AFLMA incorporates four focus areas: 1) supporting Air Force enterprise logistics transformation (as owner of the LogEA), 2)

studies and analyses which generate logistics solutions, 3) support for wargames, and 4) publishing ACS literature. As the Expeditionary Combat Support System is developed and implemented, AFLMA will continue to transform toward its primary future mission of supporting Air Force enterprise logistics transformation as the owner of the Air Force LogEA. During this period of development, the AFLMA will perform studies and analyses, with the primary focus being on eLog21 processes. AFLMA will generate high-quality studies, reports, and analyses designed to enhance Air Force enterprise logistics efficiency and effectiveness. Through the research and analysis missions, the AFLMA will design concepts,

**Our goal to tackle tough Air Force logistics issues remains the cornerstone of the AFLMA. *Generating transformational solutions today; focusing the logistics enterprise of the future* conveys our strength and our commitment.**

**R. Dean Golden, DPA, Director**

methods, and systems to improve Air Force-wide logistics and thus increase worldwide readiness and overall combat capability. To accomplish this portion of the mission, the AFLMA will provide decision-quality recommendations which will sharpen ACS capabilities and shape future Air Force logistics policies and processes. At the same time, through enterprise-focused research experience and specialized training, AFLMA team members will develop and hone the competencies needed to skillfully execute the mission of LogEA ownership.

The AFLMA will continue to provide logistics support for wargames. It has been the AF A4 logistics executive agent for Air Force Title X wargames since 1997. In this portion of the mission, the AFLMA's primary role will be to improve logistics play and to develop and execute DCS, Logistics, Installations, and Mission Support (AF A4) objectives in Air Force Title X wargames. More specifically, the mission of the Wargames Division will include: 1) assist AF A4 and the Wargame Action Agency to ensure ACS logistics capabilities are accurately portrayed in wargames, 2) provide game design and modeling or simulation assistance, 3) ensure use of relevant logistics information and data in wargames, 4) observe and participate in Title X and other major wargames, and 5) provide pre- and post-wargame assessment, and assistance in adjudication of Title X and other major wargame events. Wargames will be fully integrated with the other aspects of the AFLMA mission. AFLMA's wargame activities will serve as an instrument for testing and honing Air Force enterprise

logistics concepts and processes toward eLog21 transformation. Similarly, logistics issues revealed during wargames will be considered as potential subjects for further research through AFLMA's studies mission.

The AFLMA will also continue to publish ACS literature. It will develop, prepare, produce, and publish the *Air Force Journal of Logistics*—the professional logistics publication of the Air Force. The Journal provides an open forum for presenting research, innovative thinking, and ideas and issues of interest to the Air Force and civilian logistics communities. In addition to the primary Air Force audience, the Journal will serve a secondary audience throughout the DoD and US government and a tertiary audience in industry, academia, and foreign nations. The AFLMA will also develop, prepare, produce, and publish books, monographs, and handbooks or guides to meet the needs of the Air Force logistics community at large, professional military education programs, continuing education programs, and mentoring. As with all AFLMA activities, the publishing mission will support Air Force accomplishment of eLog21 initiatives. AFLMA publications will serve the change management role of communicating eLog21 transformation to the entire Air Force logistics community.

The AFLMA serves a variety of Air Force customers. From the highest echelons of the Air Staff's senior decisionmakers and the Air Force LBOA, to the warfighting major command headquarters, to logisticians in the field implementing policy decisions,

the AFLMA serves each as a consumer or user of the Agency's outputs. The products and services provided to these customers come in many forms, which include, but are not limited to, studies and analyses, guidebooks, policy and procedural recommendations, wargaming support, model or simulation creation and updates, and publications. Every product and service of the Agency will be focused on sharpening ACS capabilities as AFLMA transforms along with the Air Force enterprise.

## Vision

*Generating transformational solutions today; focusing the logistics enterprise of the future.*

The AFLMA vision is to be an agent of change, generating Air Force enterprise solutions in order to transform and sharpen ACS for the warfighter now and into the future. As the architecture evaluator and analytical checkpoint for LogEA, the Agency expects to be the primary provider of solutions to the complex problems facing Air Force logisticians who are engaged in vital combat support. The AFLMA will be successful to the degree that its recommended solutions result in leaner, more effective and efficient logistics processes, improved delivery of resources to the warfighter, and a more economical sustainment of Air Force systems—in sum, sharpened ACS. The AFLMA will concentrate on transforming itself to provide the skill sets, competencies, capability, and capacity to execute the future mission of sustaining the Air Force supply chain process architecture.

In order to accomplish the vision, the AFLMA will capitalize on the core competencies of its members. These competencies include: 1) a highly qualified, educated, experienced, cross-functional workforce, 2) objective, in-depth, relevant analysis, 3) a rigorous internal process yielding high-quality products, and 4) strong strategic partnerships. The Agency serves a crucial and unique service to the Air Force logistics community by objectively analyzing information in order to develop solutions which will continue to shape the Air Force logistics enterprise.

### AFLMA Goals for 2009

- Target activities to improve ACS capabilities
- Develop our total force core values, professional skills, and quality of life
- Streamline internal processes and sharpen external logistics capabilities through the application of continuous process improvement principles
- Promote AFLMA as a world-class studies and analysis support center
- Develop AFLMA to accomplish supply chain process sustainment

**There are many ways to measure mission success. One of them is the *count*—how much did we do, how much got done, what did we complete? A second way to measure success is *meeting our customers' needs*. That means three things: first, understanding what the problem really is; second, giving our customers a great, workable solution; and third, meeting Air Force study priorities and needs.**

## Introduction

The Air Force Logistics Management Agency (AFLMA) is a field operating agency of Headquarters Air Force (AF) located at Maxwell AFB, Gunter Annex, Alabama.



We serve under the direction of the Director of Transformation (AF A4I), Deputy Chief of Staff (DCS), Logistics, Installations, and Mission Support (AF A4/7). In accordance with *Air Force Mission Directive 33*, we focus on four principal missions: 1) studies and analyses which generate logistics solutions, 2) supporting Air Force enterprise logistics transformation (owner of the Logistics Enterprise Architecture [LogEA]), 3) support for wargames, and 4) publishing literature related to agile combat support (ACS). The Agency assumed the LogEA mission in March 2008. As the Air Force implements various initiatives under Expeditionary Logistics for the 21<sup>st</sup> Century (eLog21), the AFLMA will ensure

compliance of those initiatives with the overarching LogEA.

We have approximately 40 logistics researchers, analysts, other specialists, and support staffers on hand whose sole purpose is to deliver to you—our customer—the best possible analyses of logistics issues and challenges in order to improve ACS for the warfighter. This *Year in Review* will give you a summary of our activities over the past year.

The AFLMA is uniquely positioned to be a leader in logistics transformation efforts and the logistics *go to* problem solver for the US Air Force. If we get a request for assistance that we can't handle, then we will refer the requester to one of our strategic partners.

**R. Dean Golden, DPA, Director**

# THE RESULTS

**Generating Transformational Solutions Today;  
Focusing the Logistics Enterprise of the Future**

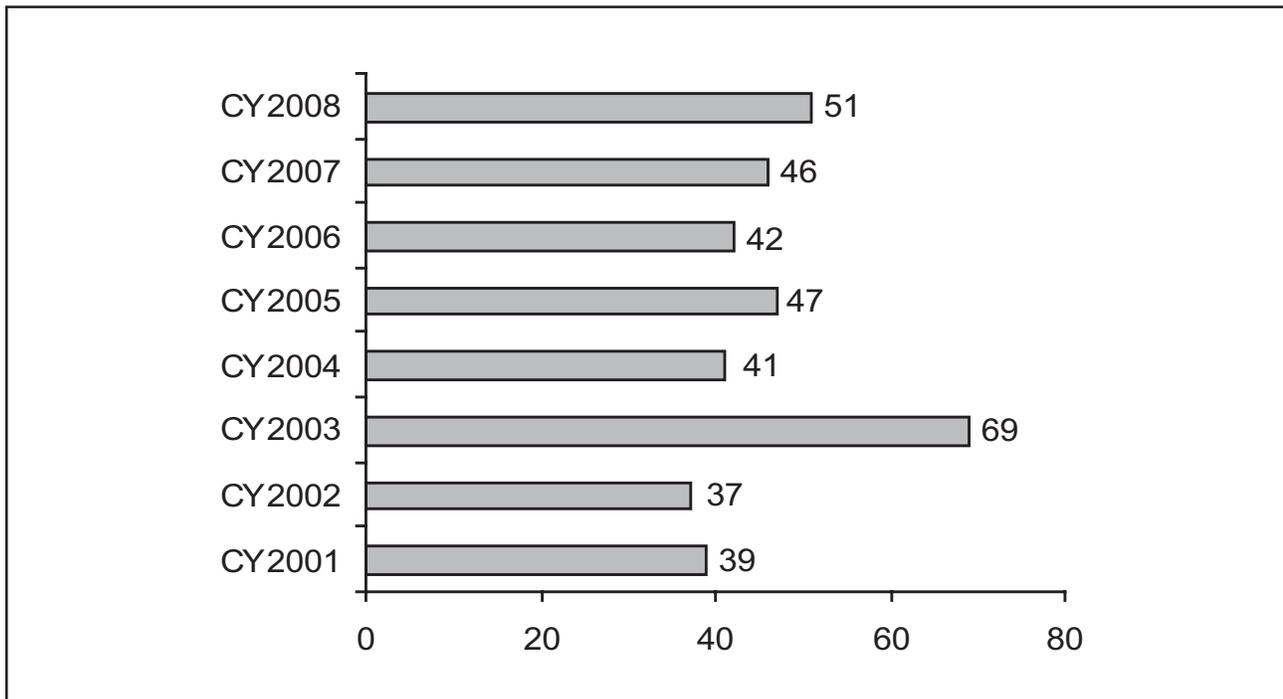


Figure 1. Completed AFLMA Studies 1999-2008

Simply stated, we want to be the *first responders* when Air Force organizations have logistics problems. We also want to make Air Force Smart Operations (AFSO21) principles a way of life both internally and externally for all of our research activities.

### A Brief Overview of AFLMA Activities in 2008

**Studies and Analyses.** A major charge of the AFLMA is to study and analyze Air Force logistical processes. This is accomplished through the generation of high-quality studies, reports, and analyses that are designed to enhance logistics efficiency and effectiveness. Through these reports, the AFLMA designs concepts, methods, and systems to improve Air Force logistics and thus increase readiness and overall combat capability. To accomplish this portion of the mission, the AFLMA provides decision-quality recommendations which sharpen ACS capabilities and shape Air Force logistics policies. In 2008, the Air Force Logistics Management Agency completed

51 studies. This continued our practice of completing 40 to 50 projects each year (Figure 1). Figure 2 stratifies our studies by project sponsor.

Examples of our studies include retrograde *Spares Supply Chain Management*, *Nuclear Weapons-Related Materiel Research*, *Prepositioning Of Small-Arms Weapons in the Area of Responsibility (AOR)*, and developing and publishing an updated Joint contingency contracting handbook.

*Retrograde Spares Supply Chain Management*—the Air Force for some time has aggressively monitored the prioritized distribution of newly repaired parts from its repair depots to base-level users. However, it has not closely monitored the retrograde of unserviceable carcasses from the base to higher echelon repair depots. Estimates indicated some 7,000 assets worth \$232M are in the retrograde pipeline at any particular time. To correct this deficiency, the AFLMA developed an enterprise system (supply application) to track unserviceable parts between the bases and the repair depots. As part of this effort, the Agency also conducts

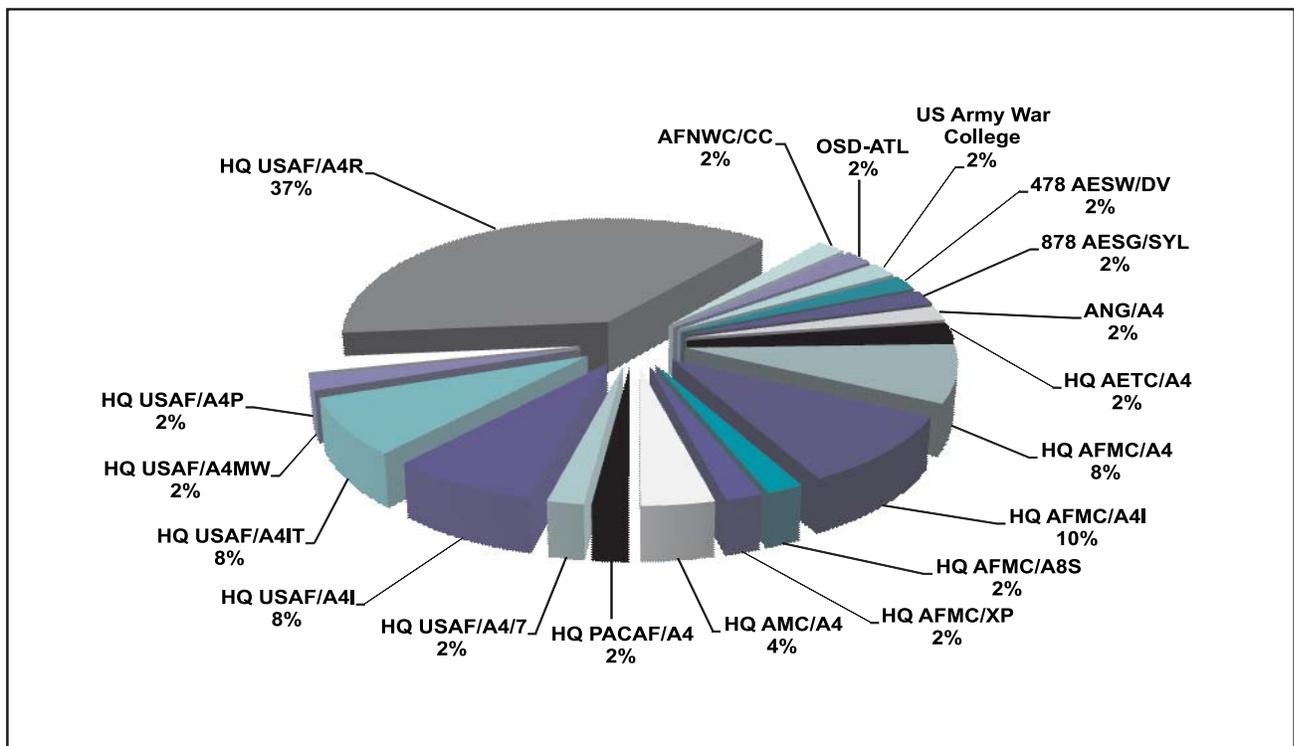


Figure 2. Completed Studies 2008

periodic reviews to resolve discrepancies between transportation and shipping data and the supply data at both the bases and depot. The increased visibility of assets improves requirements calculations, repair scheduling, and overall supply support to the warfighter.

*Nuclear Weapons-Related Materiel (NWRM) Research*—in 2008 the Secretary of Defense directed a complete worldwide inventory of NWRM assets. To support this requirement, AFLMA provided data extraction and analysis for the inventory review, as well as the lead analyst for the Comprehensive Assessment of Nuclear Sustainment review. The Agency’s efforts in this area continued into 2009.

*Positioning of Small-Arms Weapons in the AOR*—the Air Staff approved prepositioning of small arms in the AOR. As a result, units were tasked to leave their weapons in the AOR and this caused shortages at home stations. These shortages affected unit-level readiness levels. To

respond to the problem, AFLMA developed a methodology to ensure those units that were tasked to leave weapons in the AOR could be backfilled in an appropriate manner, taking into account mission requirements (special operations, and outside the continental United States units) and public laws (as pertains to the Air National Guard and the Air Force Reserve). We then developed a methodology to assess Air Force-wide mission capabilities associated with these weapons.

*Joint Contingency Contracting Handbook*—during 2006 and 2007 AFLMA developed the first Joint handbook—*Contingency Contracting: A Joint Handbook*. This award-winning book was expanded and updated in 2008 to produce *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*. Major enhancements included in the new handbook included critical information checklists, updated tools, templates, training scenarios, and interactive games. In addition, all the information

provided on the handbook DVD was uploaded to a Web site accessible to contingency contracting officers in the field or at home station.

Other projects provided decision support for AF SO21 initiatives, information technology development and data management projects, and cost studies.

**Logistics Transformation.** To fully meet the Agency's role in transformation, we've reorganized our division structure, and the AFLMA has been brought under the Directorate of Transformation (AF A4I) (see Figure 3). To support logistics transformation, AFLMA is working closely with Information Technology (AF A4IS), Transformation Management (AF A4ID), and Logistics Transformation (AF A4IT). These divisions, along with AFLMA, are developing a partnership to further transformation through research and implementation of eLog21 initiatives. Examples of major transformation activities are as follows: 1) LogEA (contract data requirements list review, Expeditionary Combat Support System (ECSS) Systems View-8, and architecture compliance), 2) ECSS (source selection participant and blueprinting—subject matter experts and quick-turn analysis), and 3) Research (data integrity, operations flying hour information technology systems and ECSS touch points, and metrics data for ECSS operation, test, and evaluation).

**Wargames.** The AFLMA has been the AF A4/7's logistics executive agent for Air Force Title X wargames since 1997. The AFLMA's primary role is to improve logistics play and to develop and execute DCS, Logistics, Installations, and Mission Support objectives in Air Force Title X wargames. More specifically, the mission of the Wargame Division includes: 1) assisting AF A4/7 and other wargame action agencies to ensure logistics capabilities are accurately portrayed in wargames, 2) providing game design and

modeling and simulation (M&S) assistance, 3) ensuring use of relevant logistics information and data in wargames, 4) observing and participating in Title X and other major wargames, and 5) providing pre- and post-wargame assessment, and assistance in adjudication of Title X and other major wargame events as required. AFLMA's role in logistics M&S is increasing. As a key advisor to the AF A4I-led Logistics M&S Integrated Product Team, the Wargame Division directly supports the development of both a strategic plan and implementation plan. The plans are aimed at forming a strategic framework from which to acquire, develop, manage, and operate logistics M&S solutions. These solutions will enable the Air Force to organize, train, equip, and employ current as well as future air, space, and cyberspace forces for the Joint warfighter. In 2008, we supported three major activities: 1) Senior Decision Making Exercise 2008, 2) Global Mobility Wargame 2008, and 3) Unified Engagement 2008.

**Publications.** The fourth mission focus area for the AFLMA is publishing ACS-related literature. The AFLMA develops, prepares, produces, and publishes four times per year the *Air Force Journal of Logistics*—the professional logistics publication of the Air Force. This peer-reviewed journal provides an open forum for presenting research, innovative thinking, and ideas and issues of interest to the Air Force and civilian logistics communities. In addition to the primary Air Force audience, the Journal serves a secondary audience throughout the Department of Defense (DoD) and US government, and a tertiary audience in industry, academia, and foreign nations. Of note during 2008 was the Journal AF SO21 special edition. The AFLMA also develops, prepares, produces, and publishes books, monographs, and handbooks and guides to meet the needs of the Air Force logistics

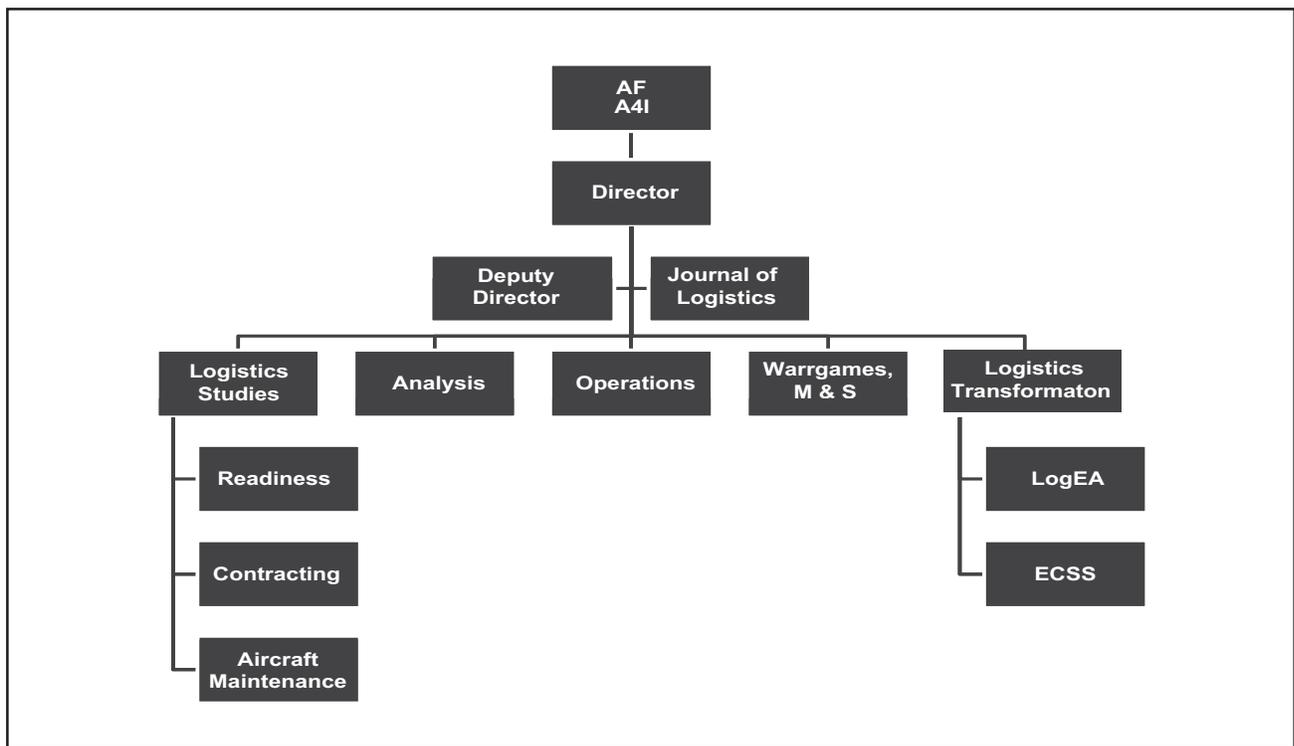


Figure 3. Current AFLMA Organizational Structure

community at large, professional military education programs, continuing education programs, and mentoring. In 2008, without question, the most significant publication was *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*. This pocket-sized handbook and its accompanying DVD directly facilitates the training and support of all acquisition professionals from all branches of Service. More than 10,000 copies were produced to support the DoD requirement. It contains Joint contingency contracting doctrine and describes the military’s capabilities, best practices, and fundamental principles that guide the employment of US contracting forces in a Joint environment. Other major publishing projects were Maintenance Metrics U.S. Air Force, Logistics Dimensions 2008, and C-5 TNMCM Study II.

### Special Mention

- Seven AFLMA personnel were deployed during 2007 to Iraq and Afghanistan: five logistics readiness officers (LRO), one contracting officer, and one analyst. For

most of the LROs, these rotations and 365-day TDYs were preceded by 8 weeks of training with the US Army.

- We collaborated with faculty and students at a number of DoD schools including Defense Acquisition University-South, Air War College, Air Command and Staff College, the Air Force Institute of Technology (AFIT) School of Systems and Logistics, the AFIT School of Engineering and Management, the Advanced Logistics Readiness Officer Course, and the USAF Maintenance Group Commanders’ Course.
- We strengthened ongoing strategic partnerships with the Logistics Management Institute, ICF International, and RAND.

### Conclusion

If you can’t find the logistics knowledge you need in our publications or on our Web site, let us know. We’ll work with you to find that knowledge.

# 2008 Completed Projects

## Contracting

- LC200626200, Standardize Contingency Contracting Training Plan
- LC200631101, Joint Contingency Contracting Handbook

## Maintenance

- LM200815800, Air National Guard Global Wing Restructure Test
- LM200817000, AIT LRS IN CHECK VSM
- LM200712100, Maintenance Data Integrity Study
- LM200835802, 1970s Legacy Logistics IT Systems
- LM200714400, Bill of Materials Initiative for Incorporation
- LM200835801, Weapon System Availability Potential
- LM200829800, USAF Munitions Logistics Enterprise

## Readiness/Transformation

- LR200715100, Equipment Retention Analysis
- LR200724902, Supply Chain Operations Design Team (SCO DT)
- LR200700706, COLT Metrics: DLA Demand Data
- LR200700702, National Stock Number Level Issue and Stockage
- LY200817300, Comprehensive Assessment of Nuclear Sustainment
- LR200623000, Adjusting Supply Chain Data to Support RE21
- LR200700703, Alternative Demand Data Sources for Readiness

- LR200700701, Air Force Total Ownership Cost (AFTOC) Data
- LR200729700, Forward Stocking of AF Managed Items at DDKS
- LR200733409, Transportation Requirements for AOR Assets
- LR200725000, Supply Chain Process Sustainment (SCPS) Entity
- LR200725304, Enterprise Assessments for Equipment
- LR200733403, Review of F-22 Spares Forecasting Techniques
- LR200810200, Item Accountability—Part 1
- LR200818200, RBL Quarterly Computation Analysis Support
- LR200733413, Review of F-22 Spares Forecasting Techniques—Part 1
- LR200725301, Enterprise Assessments for Spares
- LR200803900, Initial Implementation for Forward Stocking AF
- LR200729600, Review of F-22 Spares Forecasting Techniques—Part 2
- LR200723400, Developing a Standard Methodology to Forecast
- LR200729000, Supply Data Integrity (RAMP vs SBSS)
- LR200804300, Review of DAAS Edits for Suspected FAD 1
- LR200733412, Review of F-22 Spares Forecasting Techniques—Part 3
- LR200812000, Inventory Analysis of Nuclear Weapons Related Materiel
- LR200808700, Transportation Requirements for the AOR

- LR200809400, Review of the Criteria for Using the Heuristic in RBL
- LR200727803, Measuring the Effectiveness of the CHPMSK+
- LR200809401, D200A EOQ Additive Requirement
- LR200818300, RBL Quarterly Computation Analysis Support
- LR200725300, Using COLT for GSD Management
- LR200733100, Logistics Enterprise Architecture (LogEA)
- LR200830300, Computing IRSP Off-Set Levels for FY10 Kits
- LR200829400, PACAF F-16 Aggressors CHPMSK
- LR200821400, RBL Quarterly Computation Analysis Support
- LR200822100, AF Subscale Aerial Target Spares Requirements
- LR200829401, Adjusted Stock Level Reconciliation for AF
- LR200815806, CHPMSK+ for C-130s at Bagram Air Base
- LR200815802, Analysis of SBSS Shipment Suspense Details
- LY200605800, Bench Stock Implementation Support

### **Wargames**

- LX200713500, Futures Capabilities 2007
- LX200808000, Strategic Decision Making Exercise (SDME) 2008
- LX200726203, Global Mobility (GLOMO) 2008

# *results* at a glance

## **Total 2008 Completed Projects**

- **51 Studies**

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## **Completed Expeditionary Airpower and Agile Combat Support Studies and Research**

### **2008 Completed Projects**

- LC200626200, Standardize Contingency Contracting Training Plan
- LC200631101, Joint Contingency Contracting Handbook
- LM200815800, Air National Guard Global Wing Restructure Test
- LM200712100, Maintenance Data Integrity Study
- LM200835802, 1970s Legacy Logistics IT Systems
- LM200835801, Weapon System Availability Potential
- LM200829800, USAF Munitions Logistics Enterprise
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- LX200726203, Global Mobility (GLOMO) 2008
- LY200605800, Bench Stock Implementation Support

### **Major Publishing Projects**

*Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*

*Maintenance Metrics U.S. Air Force*

*Logistics Dimensions 2008*

*C-5 TNMCM Study II*

*Cumulative Index: Air Force Journal of Logistics, Eighth Edition*

*Information for Contributors: Air Force Journal of Logistics*

*Information Book: Air Force Journal of Logistics*

*AFLMA Advertising Material*

*Air Force Journal of Logistics—four editions*

*Agency Folder and Brochure*

*Project Manager's Handbook*

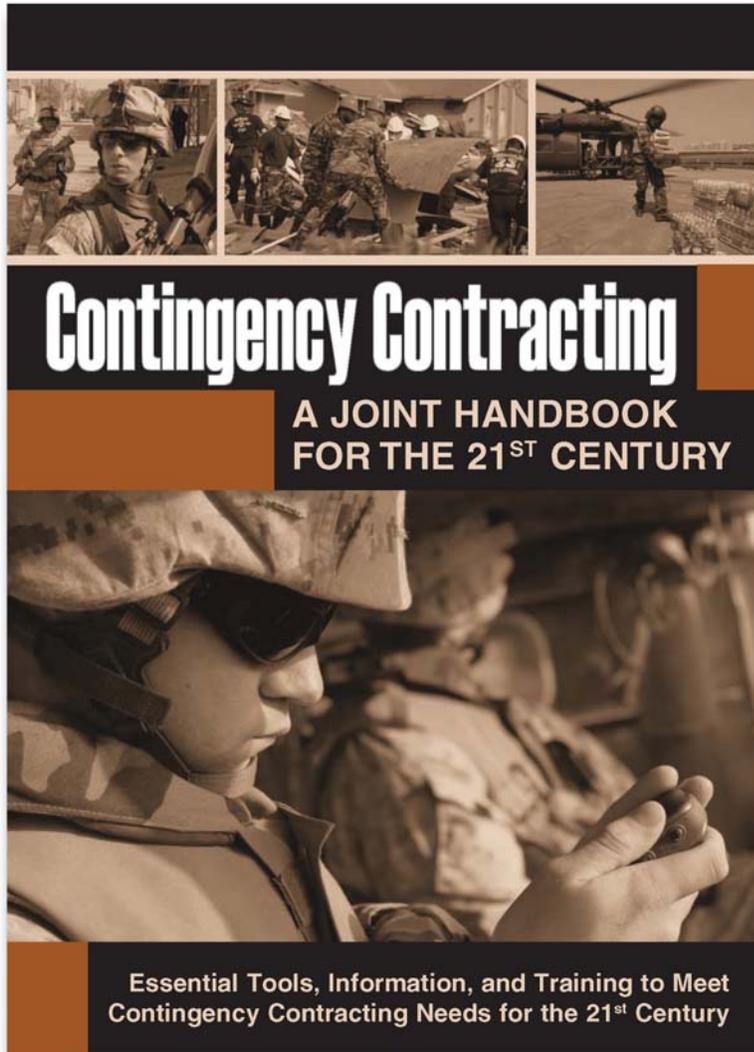
*Strategic Plan: AFLMA*

*AFLMA Year in Review 2007*

*Agency Booth and Display*

# Available Now

**Guidebooks:  
What You Need,  
When You Need It!**

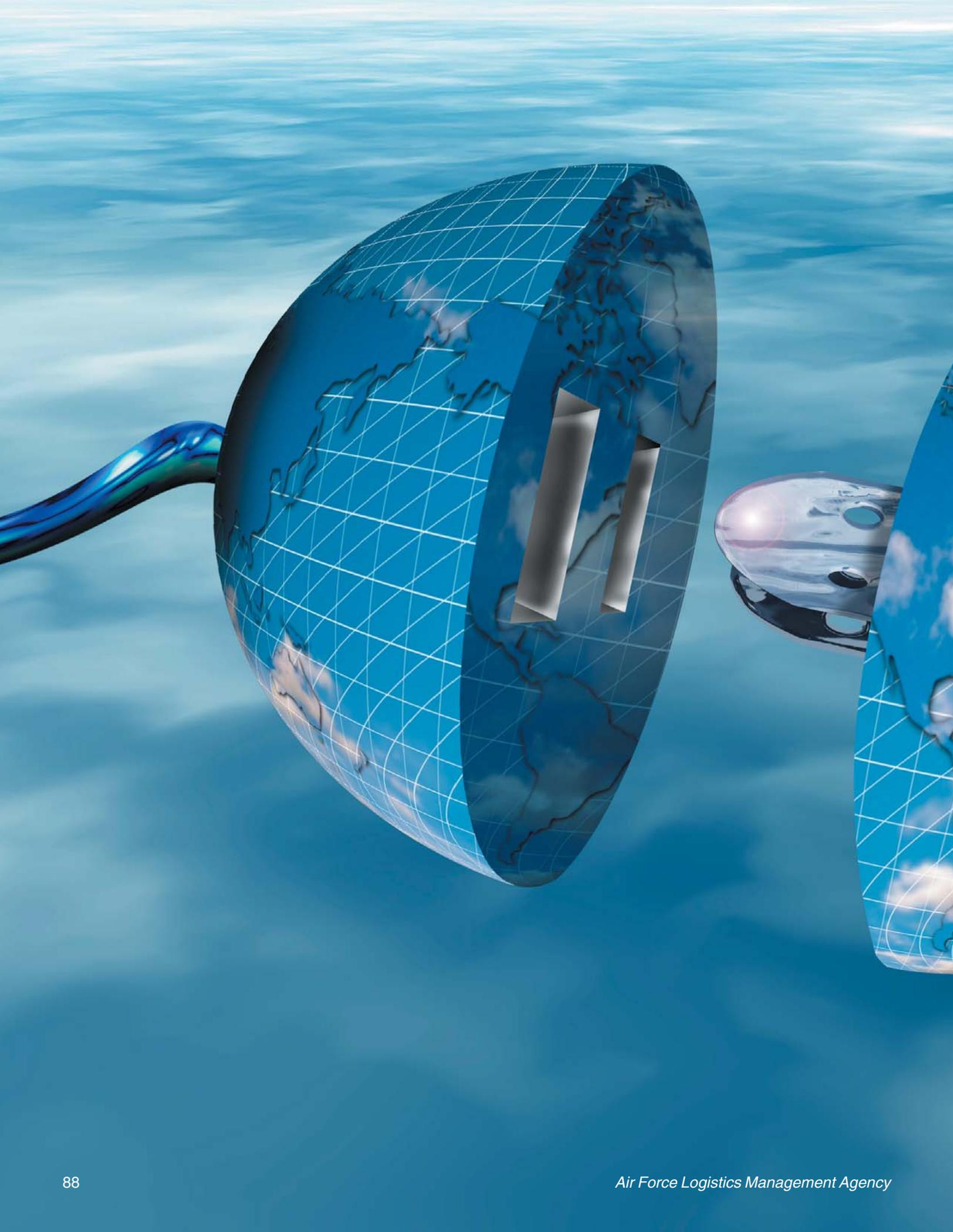


Contingency contracting support has evolved from purchases under the simplified acquisition threshold to major defense procurement and interagency support of commodities, services, and construction for military operations and other emergency relief. Today, this support includes unprecedented reliance on support contractors in both traditional and new roles. Keeping up with these dramatic changes, while fighting a global war on terror, is an ongoing challenge.

This pocket-sized handbook and its accompanying DVD provide the essential information, tools, and training for contracting officers to meet the challenges they will face, regardless of the mission or environment.

# AFLMA

**Generating Transformational  
Solutions Today; Focusing  
the Logistics Enterprise of  
the Future**





## Major Shirley Crow, AFLMA

In 2008, the Air Force Logistics Management Agency (AFLMA) continued to impact more than just Air Force logistics by participating in four significant Joint efforts: developing, distributing, and updating a Joint contingency contracting handbook, the Strategic Decision Making Exercise 2008, the Unified Engagement 2008 wargame, and the Global Mobility 2008 wargame. The Agency also initiated several opportunities to work with the Joint community into 2009 and beyond.

*Contingency Contracting: A Joint Handbook* was published in December 2007 to provide contracting information, tools, and templates to all contingency contracting officers. It supported Department of Defense (DoD) contingency contracting officers from all the Services and more than 10,000 copies were produced in three printings. On 28 February 2008, the Air Force Deputy Assistant Secretary for Contracting/Assistant Secretary for Acquisitions directed all Air Force contracting units to implement a standardized contingency contracting plan. A memo from the

# Our Joint Connection

Director for Defense Procurement and Acquisition Policy followed the Air Force directive, mandating the use of the handbook for training all the Services. Sharing the handbook and centralizing publication prevents duplication of effort and saves the government an estimated \$34K per year in publishing costs. Internally to Defense Acquisition University, the Contracting 234 curriculum was revamped in 2008 based on the information

included in the handbook. A new and expanded version of the handbook, *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*, was distributed to the field in June 2009. It includes major updates and 12 critical checklists on common contracting processes for ease of use in the field.

In March 2008, two members of the Wargame Division attended the Army's Strategic Decisionmaking Exercise at New Carlisle, Pennsylvania. The exercise is the capstone event at the Army War College, designed to provide resident students the opportunity to integrate and apply knowledge acquired during the academic year through a simulation-driven experiential event. The Agency has provided Air Force logistics subject matter experts to the exercise for a number of years. The subject matter experts served primarily in the capacity of exercise controllers in a control cell. Their primary responsibilities were answering student questions and requests for information; logistics focus areas such as mobilization, deployment, sustainment, and reconstitution; defense resourcing and budgeting; and managing master scenario events lists. Strategic Decisionmaking Exercise 2008 provided an excellent opportunity to showcase AFLMA's subject matter expert capability in Air Force logistics and team up with the Army to educate DoD's future senior leaders.

The Wargame Division also participated in two Joint/coalition wargaming events in 2008. Unified Engagement is the Air Force's event in the DoD Title X wargame series. Unified Engagement takes place every other year and generally alternates between the European and Pacific theaters. This year the game was held in Germany, with a scenario in the European theater in the year 2020. A team of four personnel from the Agency attended Unified Engagement: a logistics readiness officer (LRO), an operations research analyst, a munitions specialist, and our resident wargames contractor. Some of their tasks included tracking and supporting all Joint operations with appropriate munitions requirements; evaluating primary and alternate air and sea ports of debarkation for ability to support munitions movements based on possible scenarios; ensuring host nation support for security, fuel, and vehicles for passenger and cargo movement; creating beddown maps for personnel, equipment and aircraft; tracking daily theater-wide fuel requirements for all Joint forces; evaluating ramp space at all bases to ensure parking availability for aircraft beddown; and addressing the possible use of alternate fuels. All four members of the team were recognized and *coined* for their contributions to the game.

The precursor to Unified Engagement was Air Mobility Command's Global Mobility game. The Global Mobility wargame series explores logistics and mobility concepts, capability, and planning not typically analyzed with any level of fidelity in Title X games. It provides the logistics realism that the game would otherwise lack. The work performed in the planning and execution of Global Mobility ensures that logistics isn't *assumed away* at the Title X wargame. At Global Mobility 2008, Air Force logistics and mobility experts evaluated the Air Force force deployment portion of the Unified Engagement game. There isn't enough time at Unified Engagement to evaluate the details of the force deployment, but there is value in examining it to determine the Air Force's effectiveness in handling the deployment and redeployment of personnel and equipment. The game explored the requirements, threats, limiting factors, mobility, and agile combat support issues involved in supporting Unified Engagement 2008.

In early 2009 the Wargame Division participated in the Army's Title X wargame, Unified Quest. They also took part in the planning and execution of the Future Capabilities 2009 wargame. Held every other year, the objective of the Future Capabilities series games is to understand the logic of the situation that will drive the nature of war and the American way of war at a future date, usually 20 to 25 years in the future. Participants utilize a toolkit of conceptual weapons systems to find the powerful drivers that shape the nature of future war and the systems or concepts of operations that exert especially high leverage on the conduct of future war.

The Logistics Innovation Studies Division also initiated Joint projects in 2008 that continued into 2009. The Readiness Branch explored the possibility of teaming with representative agencies of the other Services to perform Joint research on topics that cross Service lines. An LRO met with the US Army Logistics Innovation Agency in December 2008 to introduce the Agency to its Army counterpart and to discuss possible Joint research topics. The Logistics Enterprise Architecture (LogEA) team met with the US Army personnel responsible for the Army enterprise architecture. Participating in an advisory role, the LogEA team helped Army personnel resolve issues they are having with their architecture and the implementation of the Army's Enterprise Resource Planning tool.

---

*Despise the enemy strategically but take him seriously tactically.*

—Mao Tse Tung

*Never discount randomness.*

—Benjamin Franklin

*It will not do to leave a live dragon out of your plans if you live near one.*

—John Ronald Reuel Tolkien

*In preparing for battle I have always found that plans are useless, but planning is indispensable.*

—Dwight D. Eisenhower



# Routine

has its reasons.

**Change** isn't one.

**Generating Transformational Solutions  
Today; Focusing the Logistics  
Enterprise of the Future**

Our efforts and partnerships are turning expeditionary airpower support concepts into real-world capability. Further, our work is making dramatic improvements to the Air Force supply system, and our leadership in planning is making logistics play in wargames, simulations, and exercises truly meaningful. We also are playing a major role in Transformation planning and implementation.

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Alabama 36114-3236  
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Commercial: (334) 416-4511  
<http://www.aflma.hq.af.mil>

# AFLMA

Your Transformation, Studies, and Analysis Connection

## *Supporting Transformation, Analysis, and Deployments*

# **AFLMA in the Fight**

**So how did Air Force Logistics Management Agency (AFLMA) maintain its level of performance while deploying a major portion of the staff? It turns out the staff at AFLMA practices what they preach. Part of what AFLMA *brings to the fight* is the ability to understand and, more importantly, apply Air Force Smart Operations for the 21<sup>st</sup> Century and other LEAN practices along with the ability to critically analyze data to make informed decisions. By conducting numerous efforts focused on fine-tuning the study process, Agency members streamlined the management overhead and introduced procedures to ensure each project stayed on course.**

### **Major Shirley Crow, AFLMA**

**O**ver the course of 2008, seven AFLMA officers were deployed to the United States Central Command (USCENTCOM) area of responsibility (AOR). Five of the deployers were logistics readiness officers (LRO), one was a contracting officer, and one was an operations research analyst. Here are their stories:

Lieutenant Colonel Kirk A. Patterson deployed for 365 days to the Air Force Central Command (AFCENT) Combined Air Operations Center. He was the Chief, Requirements Section, Air Mobility Division (AMD) and one of three officers and three enlisted personnel who schedule movement for all passengers and cargo throughout the AOR in support of Operation Enduring Freedom, Operation Iraqi Freedom, and Combined Joint Task Force Horn of Africa. His primary responsibilities were to lead and train a team of 90 AMD personnel responsible for intratheater movement of passengers and cargo throughout the USCENTCOM AOR; to prepare and publish the command's 5-day cargo and passenger preview and daily air tasking order for 50 C-130, C-17, and IL-76 aircraft; and to interface with Joint and combined components to ensure effective and efficient logistics throughout the AOR. During his time at the AMD, Lieutenant Colonel Patterson spearheaded the movement of 308 Afghan commandos in response to a prison break. His team's effort helped to suppress a Taliban uprising. He also coordinated and planned the immediate movement of more than 500 Allied combat troops that greatly facilitated the suppression of insurgent activity after a major uprising in Iraq.

Major Chris Boone deployed for 6 months as the operations officer for the 586<sup>th</sup> Expeditionary Logistics Readiness Squadron in Kuwait. The unit provides the Air Force's only line-haul convoy mission, supporting Joint Logistics Task Force (JLTF) 28 and providing 50 percent of the JLTF's line-haul capability. The unit has two medium truck detachments (MTD) that perform convoy missions throughout Kuwait and Iraq. Each MTD is made up of approximately 160 personnel, representing 8 different Air Force specialty codes. The Airmen operate and maintain approximately \$70M worth of Army equipment: 140 up-armored M915 tractors, 140 M872 trailers, and 4 heavy expanded mobility tactical truck (HEMTT) wreckers. The M915 tractors are equipped with electronic countermeasures and passive infrared defense against improvised explosive devices (IED) and explosively formed penetrators (EFP). The average convoy operation involves 40-plus vehicles, takes 9 to 18 days, and is commanded by an Air Force technical sergeant. Over the past 3 years, the unit has operated 1,105 combat convoy missions spanning 65 million miles, encountering 300 small arms, IED and EFP attacks, and has had 3 personnel killed in action and 8 personnel wounded in action. The average round-trip convoy carries 253 pallets of supplies, the equivalent of 42 C-130 missions. From April to November 2008, the task force transported 647,900 tons of equipment into and out of Iraq, of which 302,250 tons were delivered by the Air Force.



Major Shirley Crow served 6 months as aerial port flight commander for the 386<sup>th</sup> Expeditionary Logistics Readiness Squadron, also in Kuwait. Her team of 2 officers and 83 air transportation specialists operated one of the busiest aerial ports in the AOR, moving an average of 65,000 passengers and 8,000 tons of cargo, mail, and baggage each month in support of Operation Enduring Freedom, Operation Iraqi Freedom, and Combined Joint Task Force Horn of Africa. During her tenure, the port expedited the movement of 175 mine-resistant ambush protected (MRAP) vehicles to bases in Afghanistan. Identified as the Department of Defense's highest priority, MRAPs are replacing up-armored high mobility multipurpose wheeled vehicles (HMMWV) in the AOR because of their increased capability to survive IED attacks and ambushes. The port also supported the movement of more than 2,000 State Department passengers and more than 50 light-armored sedans and sport utility vehicles for the US Embassy in Baghdad, Iraq. In cooperation with US Army, Navy, and Marine Corps personnel as well as contingents from the Japanese Air Self Defense Force, Republic of Korea Air Force, and Royal Australian Air Force, the aerial port provided support for Joint and coalition operations throughout the AOR.

Major Gerald Morris deployed for 365 days as the deputy A4 for the Coalition Air Force Transition Team (CAFTT), which is being redesignated as the 321<sup>st</sup> Air Expeditionary Wing. His job was primarily a headquarters staff position that supported the mission to train and build the Iraqi Air Force in two ways: first, by training and advising the Iraqi Air Force headquarters staff and secondly, supporting the CAFTT personnel who advise and train the Iraqi Air Force units at Kirkuk, Taji, Basrah, Rustimiyah, Al Kut, and New Al Muthana Air Base (Baghdad). The Iraqi Air Force A4 staff works on supply, transportation, fuels, foreign military sales, and civil engineer issues. Their core function is assisting CAFTT base support units and advising Iraqi Air Force headquarters with logistics support. They provide guidance to resolve logistics issues for the Iraqi Air Force throughout the AOR by ensuring problems at the bases are being routed up to the headquarters staff via Iraqi channels. The advisors at the bases and the CAFTT A4 work in parallel to Iraqi channels to help Iraqi Air Force organizations communicate with each other and develop their own staffing system. These parallel efforts involve a variety of issues such as dining facility support, custodial support, supplies, uniforms, water, vehicle maintenance, and generator maintenance. The CAFTT A4 staff also provides guidance to develop credible Iraqi Air Force logisticians by providing oversight for developing training pipeline and technical school courses. They steer development of Iraqi Air Force logistics capabilities and have developed a strategic plan and identified capabilities that the Iraqi Air Force needs to develop in order to operate without US Air Force assistance.

Captain Dennis Clements deployed to Kirkuk Air Base, Iraq for 365 days as a contingency contracting officer. Kirkuk is home to one of the 15 regional contracting centers under Joint Contracting Command-Iraq/Afghanistan (JCC-I/A). The JCC-I/A operates in a truly Joint and dynamic environment with representatives from all the Services as well as State Department, foreign dignitaries, and local nationals working together. Their focus is now shifting to the reconstruction of Iraq. The transition to Iraqi self-reliance requires the establishment of effective contracting and procurement processes within the Iraqi Ministry

to build and sustain self-sufficient security forces and economic stability. In support of the economic stability portion, Joint Contingency Contracting–Kirkuk awarded a \$1.79M contract for the purchase of 3,711 metric tons of grain for livestock producers who are currently without an economically viable source of livestock feed. The grain sustains the viability and improves the overall health of the livestock, which will enhance market prices and boost the economy in rural and agricultural areas near Kirkuk. Another contract worth \$699,250 was awarded for the Provincial Reconstruction Team to pave a road in Hawijah, Iraq, to improve transportation within the city and develop credibility with the local populace. Under the same program, JCC is in the process of awarding a \$437,500 contract to upgrade the transmitter and antenna for the local television station, IMN-TV. The upgrade provides the province a neutral media outlet that can broadcast provincial specific programming dedicated to the citizens of Kirkuk. In support of the troops in the area, JCC has awarded a \$14.9M requirements contract for the printing and delivery of the *Stars & Stripes* newspaper to Kirkuk, Tikrit, Mosul, and Erbil Iraq, providing the newspaper to troops at forward locations.

Captain John Flory deployed for 4 months as an operations research analyst supporting the Allied Forces Central Europe Combined Air Operations Center AMD. His responsibilities were twofold. His primary responsibility was reporting all data pertaining to the state and effectiveness of air mobility operations (operational assessments). An important component of this was combining multiple, disparate information sources into a single sight picture of air mobility operations. Also important was his development of new measures of effectiveness to track mobility attributes that were previously overlooked. He was not only responsible for weekly reports to senior leadership, such as the combined force air component commander, but was also the AMD data *touch point* for the data requirements of outside units as well as other Services. Captain Flory's other major responsibility was evaluating future AMD strategy and courses of action to mitigate long-term, potential mission impacts. This included evaluating diverse topics such as possible actions to compensate for a reduction of air assets, as well as increases in mobility requirements.

Captain Elise Strachan served 6 months as the Commander, 332<sup>nd</sup> Expeditionary Logistics Readiness Squadron, Detachment 1 at a base in western Iraq. The primary mission of Detachment 1 is to transport cargo supporting military operations throughout Al Anbar province and consists of 50 Air Force personnel to include air transportation, vehicle maintenance, aerospace ground equipment maintenance, command post and transient alert. Detachment 1 personnel work alongside Marine Corps, Navy, and Army counterparts to coordinate the seamless flow of both cargo and personnel. Detachment 1 is also a leading participant in the Theater Express Program in which commercially contracted carriers transport cargo throughout the AOR on behalf of the Department of Defense, augmenting American military or *grey-tail* assets such as the C-5 or C-17 with contract aircraft such as the Russian IL-76 or AN-124. From September 2008 through March 2009, Detachment 1 saved Air Mobility Command \$33M by maximizing usage of the Theater Express Program, thus quantifying the magnitude of this critical force multiplier.



# AFLMA

- Quick responses for *high-value* studies and analyses
- Broad range of skills—can develop new specialized skills
- Enterprise-wide perspective
- Workforce with recent field experience
- Cross functional point of view
- Always high-quality work

***AFLMA's Advantages!***  
***Your Transformation, Logistics Studies, and Analysis Connection!***

**AFLMA 2008**

# Partnerships

## *The Right Team*

Partnering, partnerships, strategic partnerships—those are some interesting words. You’ve probably heard them bantered about frequently during the last few years. Likewise, you’ve probably seen a variety of briefs, books, pamphlets, or handouts where organizations told you about their partnerships.

**H**ave you ever found yourself thinking *yeah, right?* Or saying *all eyewash?* Simply renaming a traditional relationship with another organization does not make a strategic partnership. Merely identifying our daily efforts with another Air Force organization as *teaming up* is not our approach. Rather, we recognize partnerships as a needed tool to make things such as transformation, agile combat support (ACS), and expeditionary airpower a reality.

We use partnerships to give us the capabilities we don’t have, and we use them to be able to do—or do better—some of the things listed below.

- Finding those private sector practices that benefit Air Force logistics
- Finding ways to improve resource management
- Integrating new or emerging technology
- Making Air Force logistics streamlined and more responsive
- Improving Air Force logistics modeling and simulation



Our strategic partnerships include three of the most well-known research corporations: RAND, ICF International, and the Logistics Management Institute (LMI). These partnerships are well-established and growing. We're working with RAND on a variety of ACS expeditionary airpower issues and problems. Our efforts with LMI are making Air Force supply systems leaner and more responsive. Our partnership with ICF International will improve wargaming and logistics modeling and simulation support. This partnership was essential to our support of Global Engagement, Unified Engagement, and Joint Expeditionary Force Experiment. It will be just as valuable as we design the logistics play for future exercises and wargames.

Look into your crystal ball. What do you see? Do you see change? We think we do. We think we see and increased tempo to the kind of change we've seen the last 10 years: the Secretary of Defense-directed sweeping program to reform the business of the Department of Defense; defense reform initiatives that mandated adoption of business practices used by American industry to become leaner, more flexible, and more competitive; the National Military Strategy; Global Engagement; *Joint Vision 2010 and 2020*; agile combat support; and transformation. Our partnerships help us respond to change, and perhaps more important, they help us anticipate change.

### Major Strategic Partners

#### Expeditionary Airpower Studies

RAND

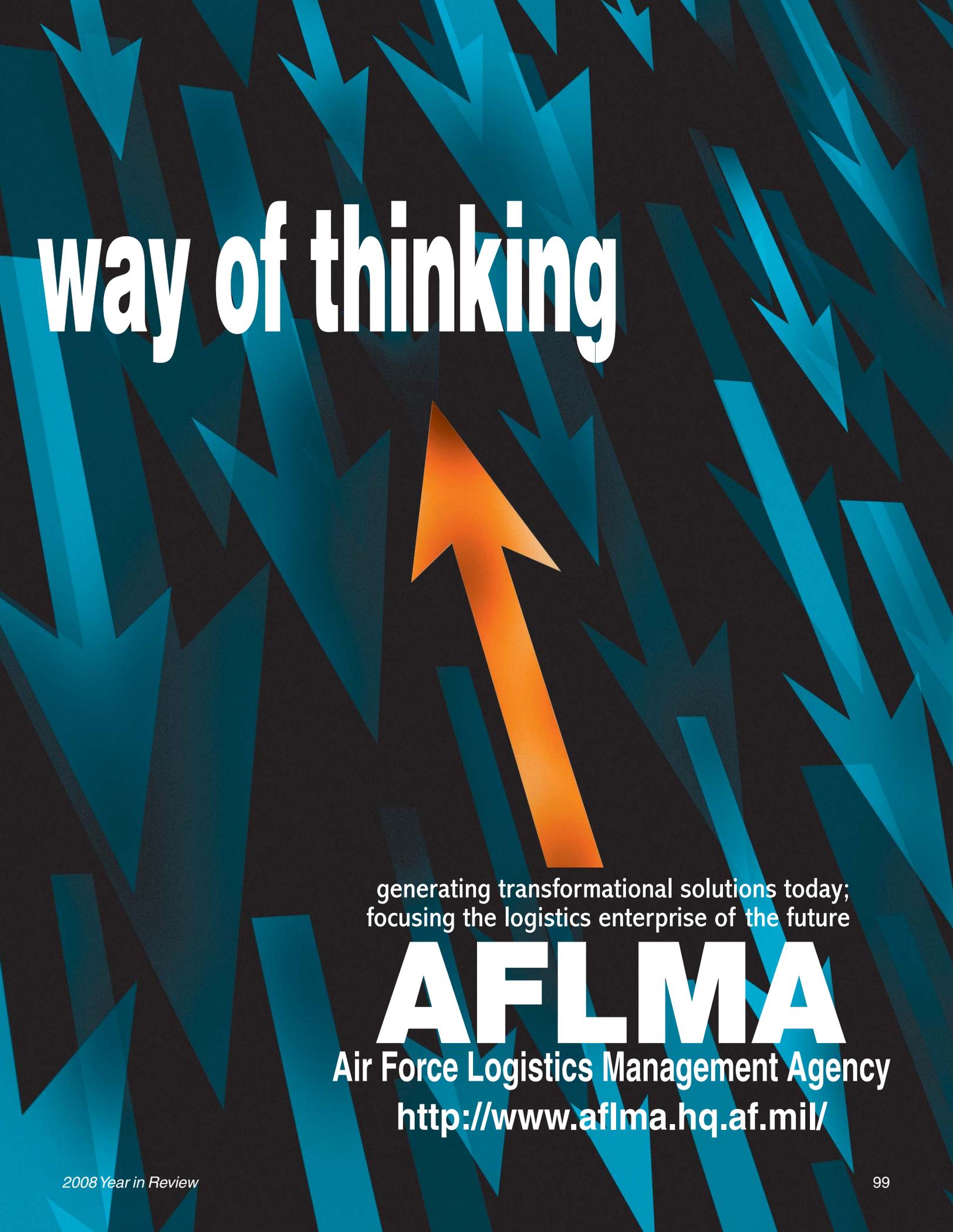
#### Wargames and Exercises

ICF International

#### Inventory and Supply Chain Management

Logistics Management Institute

# A different



**way of thinking**

generating transformational solutions today;  
focusing the logistics enterprise of the future

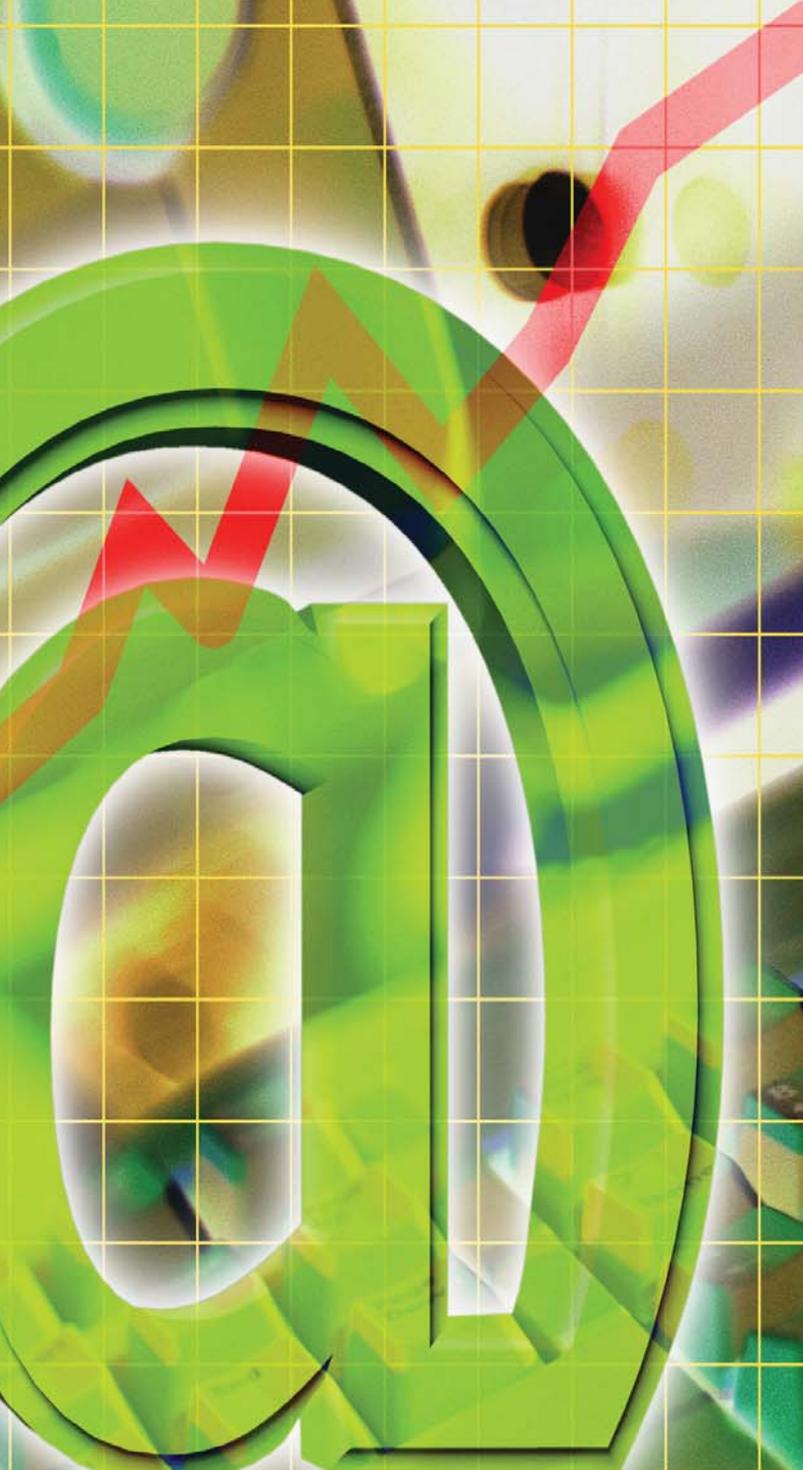
**AFLMA**

**Air Force Logistics Management Agency**

**<http://www.aflma.hq.af.mil/>**

# AFLMA 2008





**W**e use a broad range of functional, analytical, and scientific expertise to produce innovative problem solutions and design new or improved concepts, methods, systems, or policies that improve peacetime readiness and build war-winning logistics capabilities. Delivering on what we promise makes us the study and analysis agency of choice for command and staff organizations throughout the Air Force.

What you need  
**Answers**  
When you need it

**Anyone can submit a proposed project, problem, or area for study to the AFLMA, but it must be channeled through the appropriate command Director of Logistics (A4) or one of the Air Staff directors. Before a study or research effort can be started, it must be sponsored by a command A4 or Air Staff director.**

**Y**ou've just had your fifth call in the last month about why the wings can't get spare parts for the *zamboni loader* (the zamboni loader is used to move *hardened phasetrons*, and phasetrons are no good if you can't move them). Your boss is screaming, his boss is screaming, the wing commanders are screaming, the major command commander now *knows you personally*, and to make matters worse, your dog even gives you dirty looks when you come home. You've checked with your operational analysis folks and some of the operational analysis folks in the wings, and no one has any answers. During your last call, the chief of analysis mentioned something called the AFLMA. After you hang up, you find yourself wondering: What's an AFLMA? How do I get the AFLMA to take on this problem? How much will it cost? How long will they take? What do they produce?

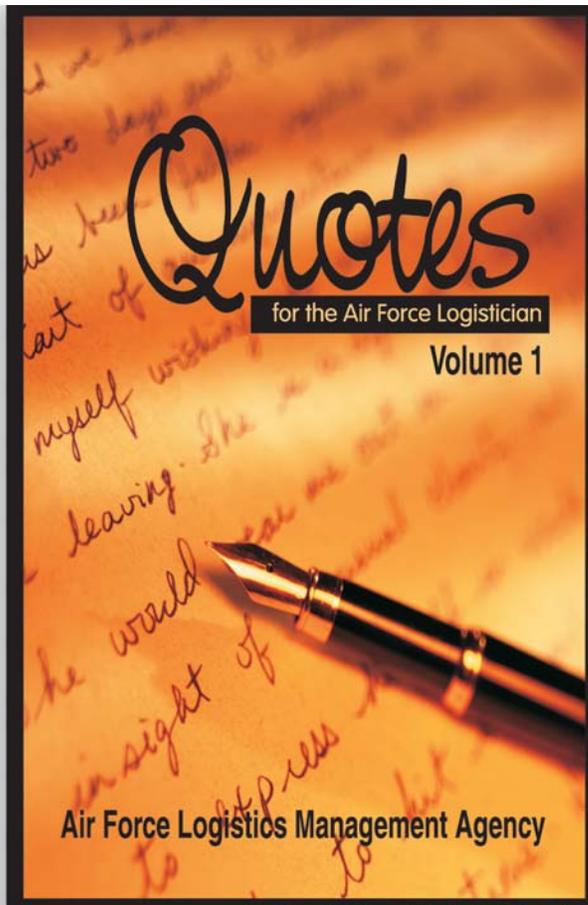
First of all, the AFLMA—Air Force Logistics Management Agency—is located at Maxwell AFB, Gunter Annex, Alabama. We're a logistics problem-solving agency. Within the Agency, we have three product divisions: Logistics Studies, Logistics Transformation, and Logistics Wargames, along with the Business Operations and Logistics Analysis divisions. The Logistics Analysis Division provides state-of-the-art and leading-edge analysis and modeling and simulation capabilities.

Anyone can submit a proposed project, problem, or area for study to the AFLMA, but it must be channeled through the appropriate

command director of logistics A4 or Air Staff director. Before a study or research effort can be started, it must be sponsored by a command A4 or Air Staff director. Upon receipt, the proposed study undergoes an extensive preliminary analysis and is submitted to the Director, AFLMA for approval. If we can't accomplish the project, we'll suggest other agencies that may be better suited for the task. When a project is accepted for study, one of our project managers assembles a cross-functional team to study the problem. Together, the functional experts and analysts ensure project results are sound, logical, and practical. Additionally, a multidisciplinary approach helps prevent functional suboptimization. We don't want a proposed solution to a maintenance problem to create supply or transportation problems. As part of the project effort, we regularly update the organization or activity that proposed the study, along with the project sponsor. When the project is completed, the Agency provides the project sponsor with a detailed report that outlines the problem, provides a solution or solutions, and makes specific recommendations. The sponsor is responsible for implementing the solution or recommendations. All our services are free to Air Force organizations.

We produce a variety of products, including process improvement studies, consulting studies, software prototypes, computer models, policy evaluations, handbooks or guides, and CD-ROM-based materials. Study length varies with each project.

## **Quotes Boxed Set: What You Need, When You Need It!**



Why a set of quotations for Air Force Logisticians? An obvious answer is there isn't one. But that's not the only reason, and it's certainly not the most important reason. The primary reason for producing this set was to provide a teaching resource that can be used in classrooms, education, training, and mentoring programs for Air Force logisticians. It is a tool that can be used by instructors, teachers, managers, leaders, and students. It is also a tool that can be used in research settings and a resource that should stimulate comment and criticism within educational and mentoring settings. Copies of the set are provided free of charge to any Air Force logistician, educational institution, teacher, instructor, commander, or manager.

# **AFLMA**

**Generating Transformational  
Solutions Today; Focusing  
the Logistics Enterprise of  
the Future**

## Active Projects

LM200835805

### ECSS Perfect Order Fulfillment Key Performance

Enable and support the Air Force Operational Test and Evaluation Center in the performance of the Expeditionary Combat Support System (ECSS) operation, test, and evaluation

LR200824700

### Acquisition Logistician Modeling and Simulation

Identify modeling and simulation tools that could be used to support the acquisition logistician

LR200827502

### Back-to-Basics Logistics Readiness Squadron (LRS) and Aerial Port Squadron (APS) Commander Handbook

Subject matter expert review of handbook

LR200911800

### Fuels and Refueling Maintenance Skill Set Consolidation Implementation Review Phase II

Review of progress in consolidating refueler vehicle maintenance and refueler maintenance

LR200821307

### ECSS End Item Maintenance Scheduling

ECSS will manage complex requirements such as program depot maintenance and modifications—understand full extent of similar systems

LR200725700

### Readiness-Based Leveling (RBL) Version Testing

Updated RBL code must be tested and validated independently of the person making the coding changes.

LR200910002

### High-Velocity Maintenance (HVM) Scheduling

Evaluation of scheduling business rules and survey to define functional requirements for a maintenance scheduling system

LR200912812

### Equipment Joint Chief of Staff (JCS) Project Code Policy

Document current policy and the problems it is causing

LR200801703

### Information Requests 2008

Respond to frequent requests for information

LR200801600

### Air Force Spares Budget Analysis (SRRB)

Quarterly data feed for spares budget

LR200801700

### Air Force Customer Wait Time Metrics (CWT)

Provide Air Force retail supply transactions to the Air Force Materiel Command Materiel Systems Group and the Logistics Management Institute to be included in the Air Force component of the Department of Defense CWT system

LR200801702

### National Stock Number Level Issue and Stockage Effectiveness Data Feed—IE/SE (2008)

Ongoing stopgap data feed and consulting effort

LR200801701

### Air Force Total Ownership Cost (AFTOC) Data

Provide data for Air Staff study on total cost of ownership

LR200815807

### AF Retention Policy

Evaluate current Air Force retention policy given that *excess items* are being created at base level for which there is no demand or forecasted need

LR200827600

### LRS Metrics

What metrics should be used at the LRS, major command, Air Staff-levels to measure success of base supply, transportation, fuels, logistics planning

LR200827500

### Inventory of Weapons in the Area of Responsibility (AOR)

Transfer M16 and M9 weapons to the AOR to prevent Air Force personnel from hand carrying weapons

LR200903401

### Reducing Volatility in Requirements and Levels

Analyze and recommend methods to reduce the impact of RBL level changes from one quarter to the next

LR200809403

### Review of F-22 Spares Forecasting Techniques—Part 6 Strategic Repair Requirements Model

Demonstrate how Aircraft Sustainability Model can be used to compute repair requirements and forecast repair budget requirements

LR200909803

### Working Capital Fund for Second Destination

Recommend whether to establish a working capital fund for second destination transportation.

LR200911900

### Analysis of JCS Project Code Usage by Contingency Bases

Determine whether contingency bases are misusing JCS project codes and what effect this has on the Air Force

LR200821302

### Worldwide Inventory Assistance

Provide recommendations and assist in the development of the templates, tools and policy necessary to perform a worldwide inventory.

LR200912803

### Back Orders versus Requisitioning Objective Holes for Execution and Prioritization of Repair Support System (EXPRESS)

Comparison of requisitioning objective holes to back orders

LR200910003

### Equipment Unsatisfactory Substitutes Requirements Analysis

Determine how much effect having unsatisfactory substitutes for equipment is having on AF requirements

LR200912802

### Equipment Agile Combat Supply Groupings for LIMS-EV

Grouping equipment into the Agile Combat Support categories

LR200902600

### Contingency High-Priority Mission Support Kit (CHPMSK) Reviews in 2009

Determine expected impact of including Air Force-managed items in a contingency high-priority mission support kit

LO200718401

### Support for QANTTAS 5.0 - 2007

Provides a central location to store evaluation and mishap data for the quality assurance offices

LO200718400

### Support for WLCMT - 2007

Updates personnel load records and produces a look at who is currently certified to load weapons, who is due recertification, and who is overdue

LX200913901

### Logistics Modeling And Simulation Strategic Plan

Plan for AFLMA to become a center of excellence for modeling and simulation

LX200909801

### Air Force Modeling and Simulation Conference

Attendance at Air Force Modeling and Simulation Conference—education

LX200909800

### Solo Challenge

Capstone event for Air War College—provide controllers and subject matter experts

LX200908401

### Joint Land Air And Sea Simulation

Capstone event for Joint and combined students at military war colleges

LX200909802

### Future Mobility (FUMO) Planning Conference

Attend planning conference for FUMO wargame—prepare for logistics play

LX200913900

### Air Force Supply Chain System Vulnerabilities

Help determine information technology vulnerabilities in the supply chain—prepare for wargaming

LY200835807

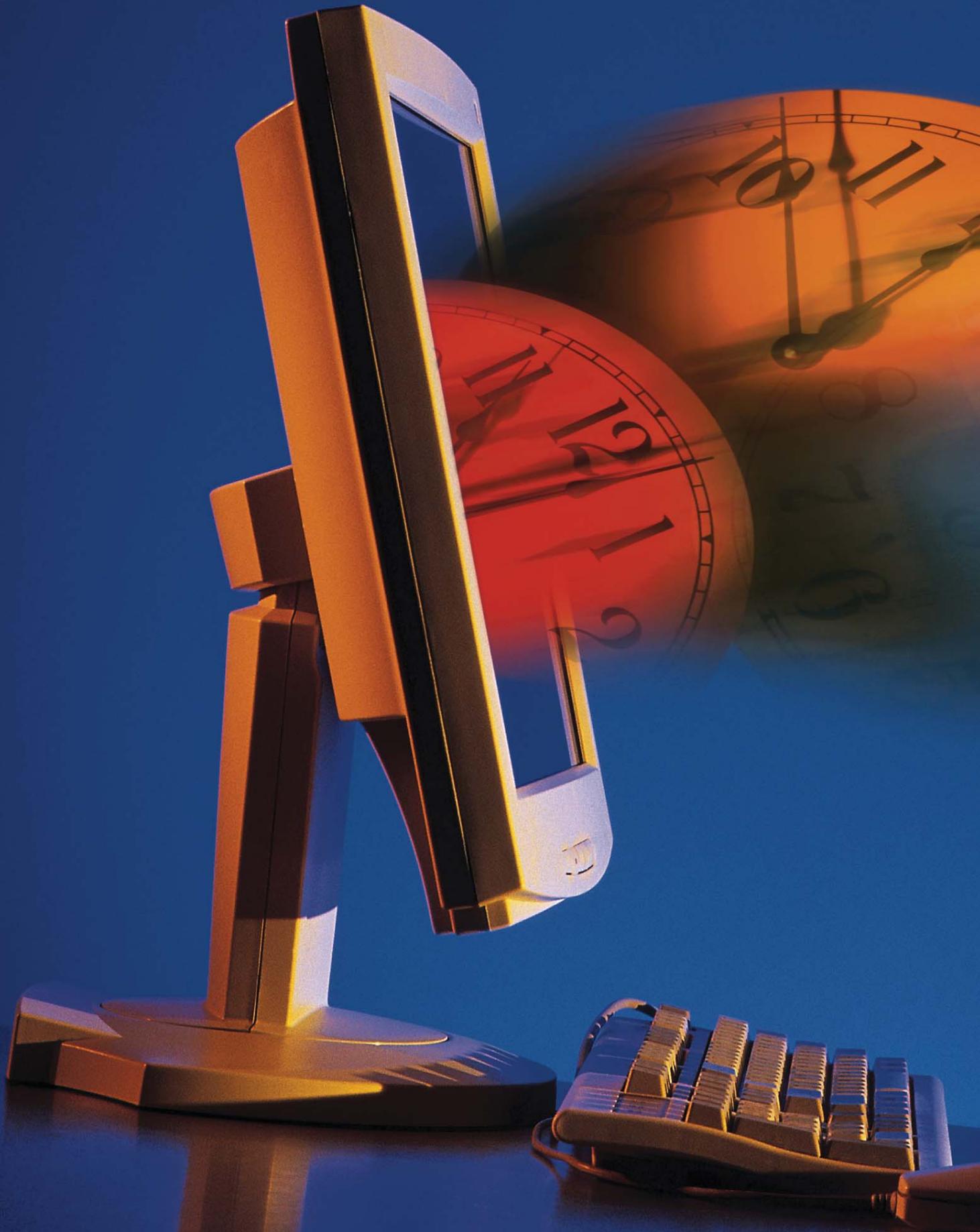
### Support Assets Management Potential within ECSS

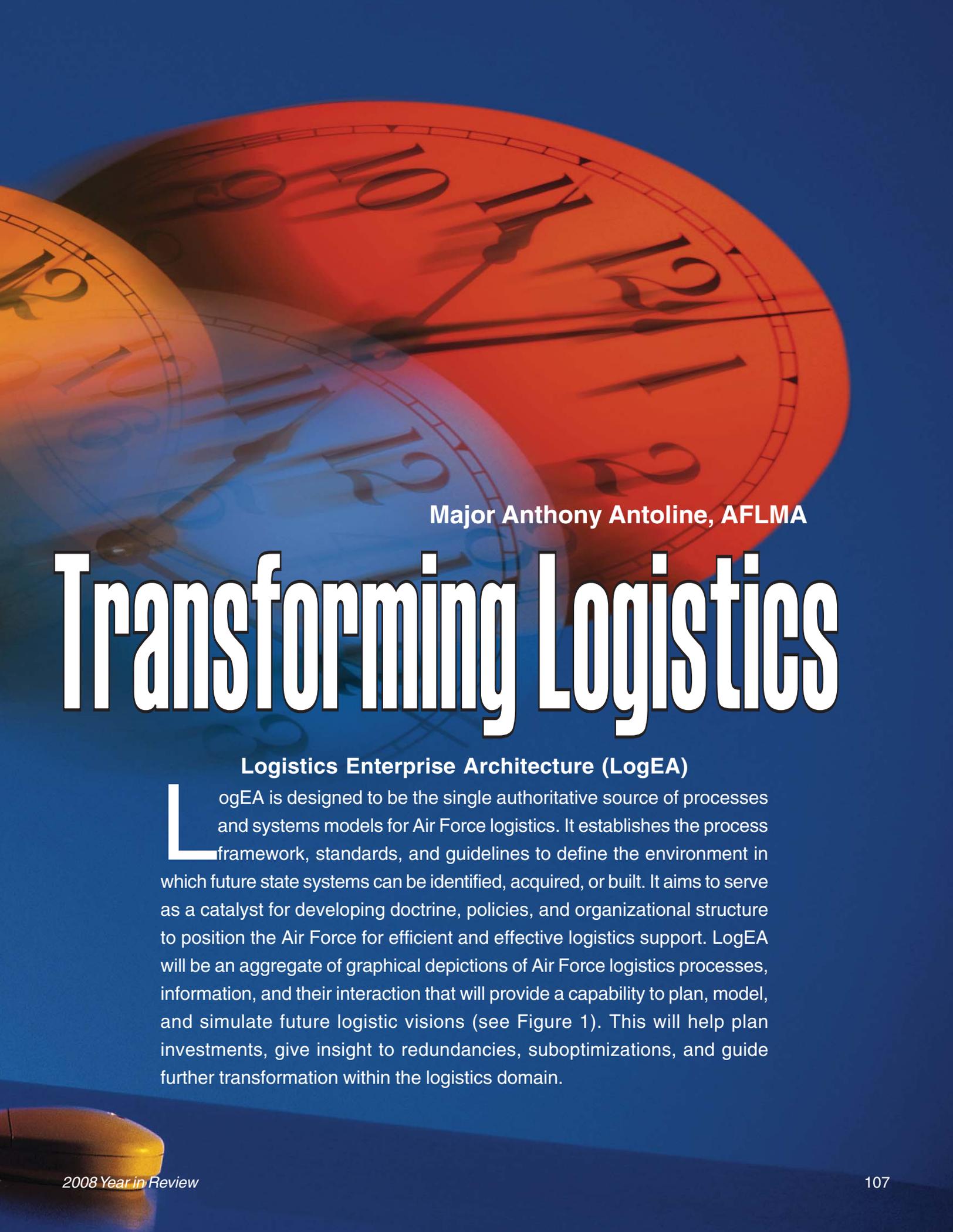
Identify which legacy systems ECSS integrators must be cognizant of when building or modifying ECSS equipment management modules

LY200420200

### Information Requests

Answer requests for previous studies, current efforts, and so forth





Major Anthony Antoline, AFLMA

# Transforming Logistics

## Logistics Enterprise Architecture (LogEA)

**L**ogEA is designed to be the single authoritative source of processes and systems models for Air Force logistics. It establishes the process framework, standards, and guidelines to define the environment in which future state systems can be identified, acquired, or built. It aims to serve as a catalyst for developing doctrine, policies, and organizational structure to position the Air Force for efficient and effective logistics support. LogEA will be an aggregate of graphical depictions of Air Force logistics processes, information, and their interaction that will provide a capability to plan, model, and simulate future logistic visions (see Figure 1). This will help plan investments, give insight to redundancies, suboptimizations, and guide further transformation within the logistics domain.



# Logistics Transformation

**2008**

Knowledge, specifically information, is power. The Air Force is transforming itself to meet the new challenges faced today, as well as the ones to be faced tomorrow. One of the key

elements to support our continued superiority in air, space, and cyberspace is information. Real-time access to information or data will allow leadership an unprecedented advantage when engaging the enemy. Colonel John Boyd described the Observe, Orient, Decide, Act (OODA) Loop, a concept of decisionmaking, that when utilized, allows one to act before the enemy, and thus positively affect the outcome of an engagement. Access to data and information in a single system that describes the Air Force logistics community will allow the warfighter to reap the benefits Colonel Boyd described. The Air Force chose an enterprise resource planning (ERP) strategy to define that system.

For years Airmen have been devising solutions to problems as they arose. At the time, the solutions were necessary and good for a specific community. The drawback was that functional stovepipes were built inadvertently, and we have become accustomed to operating within their constraints. One term to define this is *accidental architecture*. With the enterprise mindset now becoming a necessity, those stovepipes are in need of being torn down. LogEA is the concept and future tool

to accomplish this. The system to enable the tool is the Expeditionary Combat Support System (ECSS). The Air Force Logistics Management Agency (AFLMA) has established a division to focus on transformation efforts in the logistics community, heavily focused on LogEA and ECSS.

The Air Force made the determination that the maintenance and care for all of the legacy systems that currently support logistics are too costly and manpower intensive to proceed with business as usual. The need for a system to bring the agility, speed, and flexibility of Global Reach and Global Power, with an enterprise view, is vital. A system that allows all levels and organizations to see at any time the critical data elements that the logistics community uses to support the warfighter is coming. ECSS will deliver this type of capability to our leaders.

### **AFLMA Organizational Change**

AFLMA has been brought under the Directorate of Transformation (AF A4I) led by Mr Grover Dunn. To support logistics transformation, AFLMA is working closely with Information

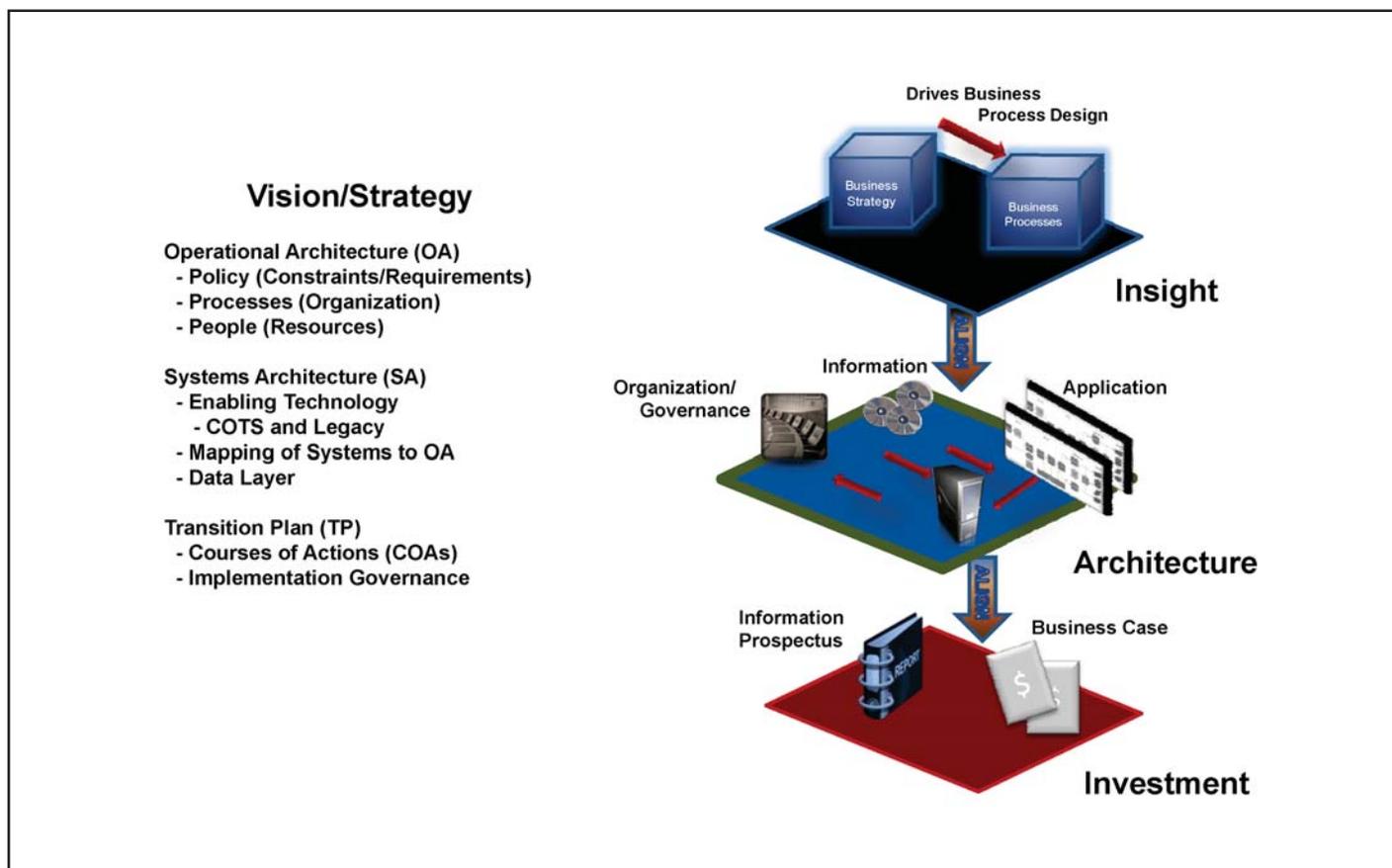
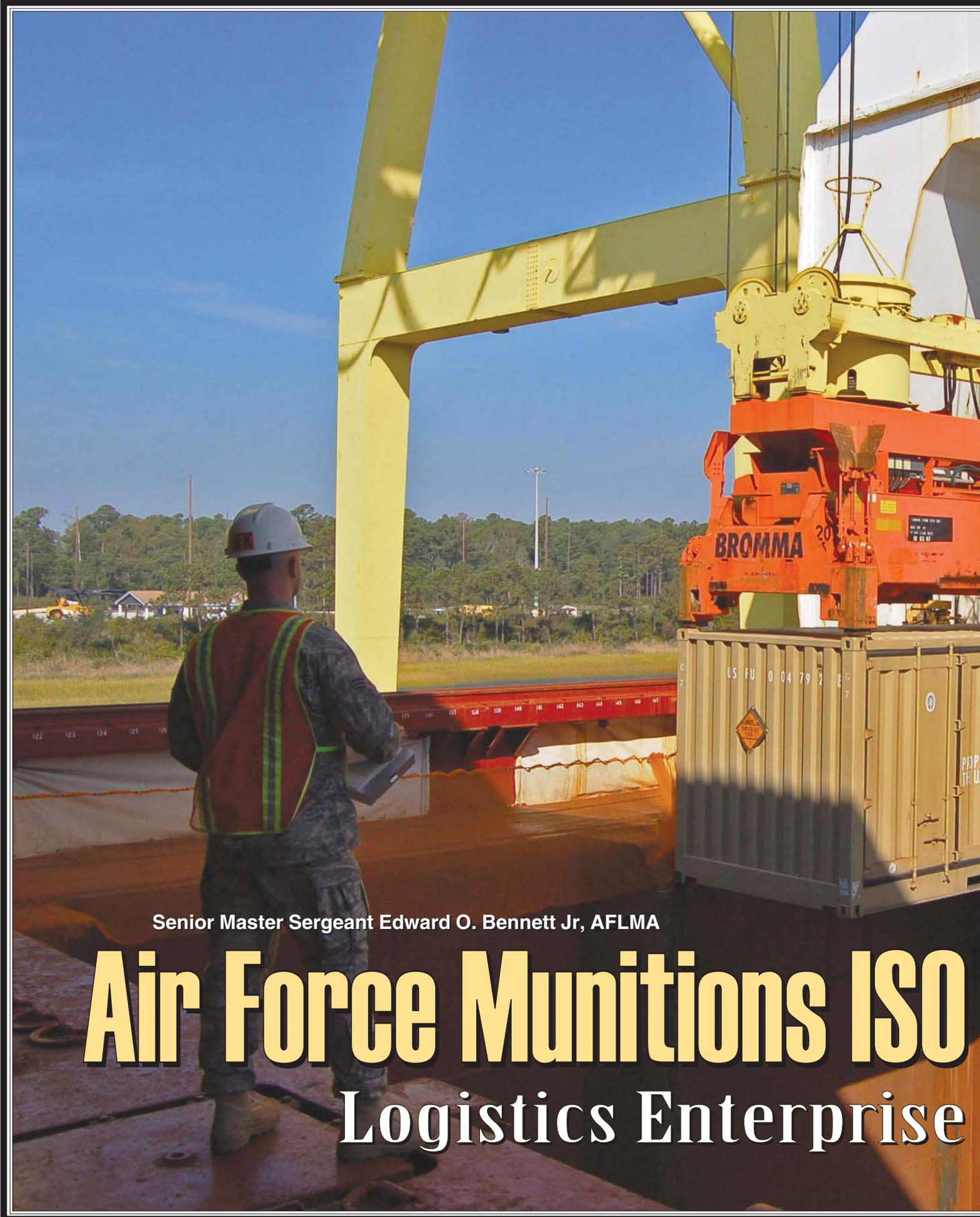


Figure 1. Components and Use of Architecture (Source: LogEA CONOPS)

Technology (AF A4IS), Transformation Management (AF A4ID), and Logistics Transformation (AF A4IT). These divisions, along with AFLMA, are developing a dynamic team to further transformation through research and implementation of Expeditionary Logistics for the 21<sup>st</sup> Century (eLog21) initiatives. The implementation of the ERP solution has uncovered some unique challenges for which AFLMA is proud to add to the body of knowledge used in finding solutions to these dilemmas.

## AFLMA Bringing Research to the Fight

The Air Force is on a journey that will be demanding. The time has come for an enterprise-level view of logistics processes as endorsed in the eLog21 campaign. The AFLMA is fully engaged in these and other efforts that strive to transform the logistics community, and help usher in a new era with the focus resting on the enterprise.



Senior Master Sergeant Edward O. Bennett Jr, AFLMA

# Air Force Munitions ISO

## Logistics Enterprise



## Introduction

Since inception, the Air Force munitions Afloat Prepositioned Fleet (APF) has been, and will remain a key pillar of the Department of Defense (DoD) Global Force Management and prepositioning. The Global Force Management construct supplements prepositioned theater munitions with war reserve materiel (WRM) swing stocks to meet a variety of missions throughout multiple theaters. Prepositioning provides the bridge between the early warfighting requirements in a particular theater and the strategic mobility assets required to move these requirements. The primary purpose of Air Force munitions prepositioning is to provide responsive and effective agile combat support (ACS) by positioning munitions where the combatant commander (CCDR) needs them to accomplish the mission.<sup>1</sup>

The Air Force Munitions APF has undergone drastic changes over the last few years; specifically, going from a four-ship construct to a two-ship construct. Another change was allowing each CCDR to utilize both vessels for planning purposes. The transformation that APF has undergone was not only driven by fiscal realities but, more importantly, enhanced ACS will be provided to the CCDRs by enabling an end-to-end enterprise distribution system utilizing the inherent movement capacity of the APF.<sup>2</sup> This transformation caused an excess in International Organization for Standardization (ISO) containers throughout the major commands (MAJCOM) and the APF.

Headquarters Air Force (AF) A4MW, Munitions and Missile Maintenance Division, requested a study from the Air Force Logistics Management Agency (AFLMA) to recommend an economic strategy comparing the use of the common commercial ISO pool to total ownership of ISO containers to meet Air Force contingency munitions needs. Additionally, the AFLMA was asked to make recommendations that would effectively reduce APF excess ISO container investment. This article documents the relevant background information, problem, objectives, methodology, research, and findings associated with this effort. It concludes with recommendations to realize the cost savings associated with AFLMA's findings.

Let's begin with some background on what ISO really means. ISO is the world's largest developer and publisher of international standards for a large majority of products and services. ISO is a network of the national standards institutes of 157 countries, with one member per country. A central secretariat in Geneva, Switzerland coordinates the system. It is a nongovernmental organization that forms a bridge between the public and private sectors. On one

# Management for Containers

# Article Highlights

## Rapid response swing stocks are used to help fill the differences between the theater's minimum munitions stockpile requirements and on-hand stocks.

Currently, the Air Force has ownership of 5,428, 20-foot ISO containers to support Afloat Prepositioned Fleet (APF), retrograde, and refresh operations. With APF operations now at a two-ship construct, the need for containers has been significantly reduced. Current operations would require 200 at each major depot: Tooele Army Depot, Crane Army Activity, Bluegrass Army Depot, and McAlester Army Ammunitions Plant. The two remaining vessels (MV Fisher and MV Bennett), will carry 1,301 containers, which includes the 391 empty containers currently loaded on the MV Bennett. Thirty containers will be kept at Kadena Air Base to carry out refresh operations and an additional 100 at Military Ocean Terminal Sunny Point as spares. The total number of containers required to carry out these operations is approximately 2,231, a difference of 3,197 containers from current total ownership.

Annual cost of repair for the current balance of 5,428 is approximately \$52K annually. Reducing the on-hand number of containers to 2,231 would reduce the annual cost of repair to \$22K annually, a savings of \$30K. Excess containers, approximately 3,197, could then be transferred to the Army Intermodal Distribution Platform Management Office (AIDPMO) to be utilized by any Department of Defense (DoD) agency requiring these type containers. AIDPMO will pay for transportation costs to locations that possess the capability to inspect, repair, and maintain serviceable containers. AIDPMO will also accept unserviceable containers and transport them to a repair facility for inspection and repair. Containers deemed not repairable could be turned in to Defense Reutilization and Marketing Service for resale or scrap.

AIDPMO has agreed to accept responsibility of all excess containers turned over to their agency to include all transportation costs. The APF and Air Force Materiel Command should coordinate this directly through AIDPMO. The DoD gain of the approximate 3,197 excess containers transferred from APF operations to AIDPMO will reduce the number of containers that the DoD currently leases, while creating significant cost avoidance for the Air Force. Since September 2006 the Air Force has leased 1,874 containers. With the additional 3,197 ISO containers turned in by APF

hand, many of its member institutes are part of the governmental structure of their countries or are mandated by their government. On the other hand, other members have their roots uniquely in the private sector, having been set up by national partnerships with industry associations. Therefore, ISO enables a consensus to be reached on solutions that meet both the requirements of business and the broader needs of society.<sup>3</sup>

These standards are used when selecting containers for transporting munitions over international waters, thereby conforming to worldwide safety standards.

Since APF's inception in 1997, there have been considerable changes to the APF structure. Fiscal realities and Pacific Command concerns prompted accelerated consideration of the two-ship APF construct. AF A4MW conducted a detailed value analysis of APF costs and benefits and concluded that a two-ship APF fleet in the short-term is best served by Motor Vessel (MV) *Fisher* and MV *Bennett*. This analysis was validated by Military Sealift Command planners and AF A4/7 (Logistics and Installations). The decision was made to take an additional APF vessel off-lease at the end of fiscal year (FY) 2008. The MV *Chapman* went off-lease in FY07. The MV *Pitsenbarger* discharged select assets in-theater, picked up retrograde, and sailed to the Military Ocean Terminal Sunny Point (MOTSU) and discharged in mid-September 2008.<sup>4</sup>

The US Air Force APF carries required munitions assets in a forward-based environment. This gives theater commanders greater deployment flexibility by reducing early munitions airlift requirements and allowing rapid movement from region to region as priorities or circumstances change. This supports the Air Force policy of global engagement, enabling quick response to needs of an engaged theater commander or an air component commander worldwide. Rapid response swing stocks are used to help fill the differences between the theater's minimum munitions stockpile requirements and on-hand stocks. The APF program is a component of rapid swing stock. The APF weapons mix provides both bomber and tactical fighter support for a variety of missions. The APF program is part of the Global Asset Positioning program. From lessons learned in the Gulf War, the munitions community began working on ways to enhance port handling and intratheater transportation capabilities. The effort centered on the use of ISO 20-foot side opening containers to transport and store munitions earmarked for contingencies. To support this effort, the APF began working with Military Sealift Command to replace bulk cargo vessels with vessels capable of handling containerized munitions.<sup>5</sup>

The Air Force munitions logistics enterprise owns 5,428 ISO containers and treats them as WRM assets. These containers are prepositioned at various munitions hubs to load immediately to meet any global contingency tasking. The containers also represent a very large inventory investment that essentially doesn't move except on infrequent occasions (see Figure 1). From a cost and effort perspective, should the Air Force continue to maintain ownership of intermodal ISO containers or use a lease option through the Army Intermodal Distribution Platform Management Office (AIDPMO)? What is the best course of action to deal with excess containers generated from the discharge of two APF vessels?

### Objectives

This article will address the following objectives:

# Article Highlights

- Identify the major sources of costs associated with ISO container ownership and management with leasing options.
- Identify areas to exploit cost savings by reducing inventory.
- Provide recommended changes to achieve cost savings.
- To the extent possible, quantify potential savings realized through the adoption of the recommended changes.

## Assumptions

This article will assume the following:

- Data collected is accurate and complete.
- Historical data is representative of future operations.

Methodology was based on personal interviews conducted by AFLMA with APF program management personnel, both past and present, via telephone and e-mail. Interviews were also conducted with AIDPMO, Air Force item managers, and equipment specialists associated with ISO containers. Summaries of the interview responses are given in this report. Container data is extracted from the Combat Ammunition System, Agile Munitions Support Tool, and Asset Inventory Management System.

## Research and Findings

The discharge of the MV *Chapman* and the MV *Pitsenbarger* left an excess of approximately 3,100 Air Force-owned, 20-foot ISO containers throughout four MAJCOMs.

This resulted in excess containers left static at numerous locations throughout the Air Force utilizing precious space, manpower, equipment, and consumables in an attempt to maintain serviceable containers. Required container certifications are not properly managed due to lack of qualified personnel at container locations and lack of funding to secure contractors. This has resulted in 643 unserviceable containers to date.<sup>6</sup> Locations with empty containers do not have certified personnel capable of inspecting or repairing current stocks.

Future requirements for the MV *Fisher* and MV *Bennett* require approximately 910 containers.<sup>7</sup>

The lease cost for these containers is based on a maximum lease period of 5 years with an approximate cost of \$3.3M for both vessels with container repair as part of the lease. This equates to \$3,636 per container over a 5-year period. The initial purchase cost of a single container is \$6,684;<sup>8</sup> therefore two 5-year leases would

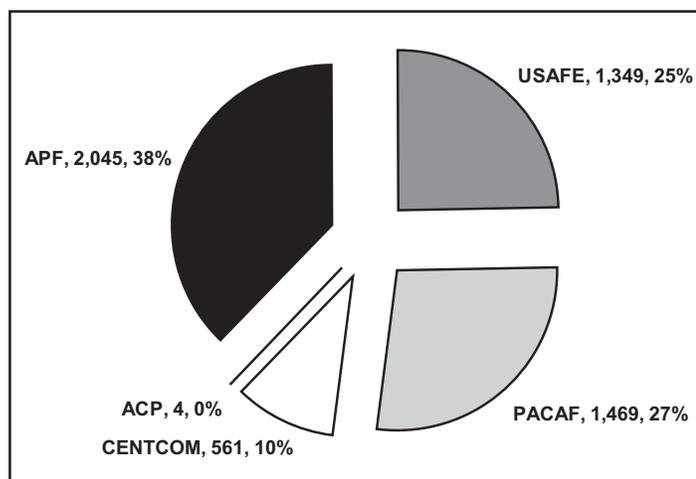


Figure 1. ISO Distribution

to DoD stockpile (controlled by AIDPMO), leasing containers for munitions movements would be virtually eliminated.

In accordance with Air Force instructions, units will maintain containers in serviceable condition for munitions redistribution or storage at all times. The Convention for Safe Containers certification on all Air Force-owned containers must be kept current. The cost to manage and maintain Air Force-owned ISO containers is minor compared to the cost of leasing containers to support these operations. It would be in the best interest of the Air Force to maintain total ownership of sufficient containers to support APF operations and any required retrograde. It is also recommended that the Air Force turn over all excess containers to AIDPMO to manage and maintain. This significantly reduces the storage space, manpower, equipment, and consumables required to maintain serviceable containers.

By reducing the ISO container inventory by 57 percent the repair savings is approximately \$150K over the first 5 years. Additionally, transferring excess containers to AIDPMO will allow DoD to utilize over 3,000 ISO containers it would have otherwise had to lease commercially. Furthermore, maintaining ownership of containers required to support the APF mission will help provide responsive and effective ACS by allowing the flexibility total ownership provides and cost avoidance of approximately \$16M.

## Article Acronyms

- ACS – Agile Combat Support
- AF – Air Force
- AFLMA – Air Force Logistics Management Agency
- AFMC – Air Force Materiel Command
- AIDPMO – Army Intermodal Distribution Platform Management Office
- AMST – Agile Munitions Support Tool
- APF – Afloat Prepositioned Fleet
- CENTCOM – Central Command
- CCDR – Combatant Commander
- DoD – Department of Defense
- FY – Fiscal Year
- ISO – International Organization for Standardization
- MAJCOM – Major Command
- MOTSU – Military Ocean Terminal Sunny Point
- MV – Motor Vessel
- PACAF – Pacific Air Forces
- PEC – Program Element Code
- US – United States
- USAFE – United States Air Forces in Europe
- WRM – War Reserve Materiel

exceed the original purchase price of a container. The cost required to manage and maintain all Air Force owned ISO containers, based on 2 years' worth of data from the APF office equates to approximately \$9K annually which is \$45K over a 5-year period. This cost is primarily attributed to damage the containers may receive during loading and unloading operations. The vessels are climate controlled; therefore no additional weathering damage is incurred.

## Conclusions and Recommendations

### Recommendations

Currently, the Air Force has ownership of 5,428, 20-foot ISO containers to support APF, retrograde, and refresh operations. With APF operations now at a two-ship construct, the need for containers has been significantly reduced. Current operations would require 200 at each major depot: Tooele Army Depot, Crane Army Activity, Bluegrass Army Depot, and McAlester Army Ammunitions Plant. The two remaining vessels (MV *Fisher* and MV *Bennett*), will carry 1,301 containers, which includes the 391 empty containers currently loaded on the MV *Bennett*. Thirty containers will be kept at Kadena Air Base to carry out refresh operations and an additional 100 at MOTSU as spares.<sup>9</sup> The total number of containers required to carry out these operations is approximately 2,231, a difference of 3,197 containers from current total ownership (see Table 1).

Annual cost of repair for current balance of 5,428 is approximately \$52K annually.<sup>10</sup> Reducing the on-hand number of containers to 2,231 would reduce the annual cost of repair to \$22K annually, a savings of \$30K. Excess containers, approximately 3,197, could then be transferred to AIDPMO to be utilized by any DoD agency requiring these type containers. AIDPMO will pay for transportation costs to locations that possess the capability to inspect, repair, and maintain serviceable containers. AIDPMO will also accept unserviceable containers and transport them to a repair facility for inspection and repair. Containers deemed not repairable could be turned in to Defense Reutilization and Marketing Service for resale or scrap. See Table 2 for current container quantities, locations, serviceability, and associated value.

AIDPMO has agreed to accept responsibility of all excess containers turned over to their agency to include all transportation costs.<sup>11</sup> The APF and Air Force Materiel Command should coordinate this directly through AIDPMO. The DoD gain of the approximate 3,197 excess containers transferred from APF operations to AIDPMO will reduce the number of containers that the DoD currently leases, while creating significant cost avoidance for the Air Force. Since September 2006 the Air Force has leased 1,874 containers.<sup>12</sup> With the additional 3,197 ISO containers turned in by APF to DoD stockpile (controlled by

AIDPMO), leasing containers for munitions movements would be virtually eliminated.

In accordance with Air Force instructions, units will maintain containers in serviceable condition for munitions redistribution or storage at all times. The Convention for Safe Containers certification on all Air Force-owned containers must be kept current. Maintenance, repair, and inspection of ISO containers is a program element code (PEC) 28030 expense (PEC 55396F for Air Force Reserve Command).<sup>13</sup> The cost to manage and maintain Air Force-owned ISO containers is minor compared to the cost of leasing containers to support these operations. It would be in the best interest of the Air Force to maintain total ownership of sufficient containers to support APF operations and any required retrograde. It is also recommended that the Air Force turn over all excess containers to AIDPMO to manage and maintain. This significantly reduces the storage space, manpower, equipment, and consumables required to maintain serviceable containers. See Table 3 for owning versus leasing cost analysis breakdown.

### Benefits

By reducing the ISO container inventory by 57 percent the repair savings is approximately \$150K over the first 5 years. Additionally, transferring excess containers to AIDPMO will allow DoD to utilize over 3,000 ISO containers it would have otherwise had to lease commercially. Furthermore, maintaining ownership of containers required to support the APF mission will help provide responsive and effective ACS by allowing the flexibility total ownership provides and cost avoidance of approximately \$16M.

### Notes

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*No form of transportation ever really dies out. Every new form is an addition to, and not a substitution for, an old form of transportation.*

—Air Marshal Viscount Hugh M. Trenchard, RAF



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# Enterprise Architecture: Origins, Tools, and Insights

Captain Alice Marie Long AFLMA

## Introduction

The Air Force is continually taking measures to institutionalize enterprise architecture (EA). However, many in the Air Force have a limited concept of what an EA is, how it works, and most importantly, why it is needed. The purpose of this article is to discuss these key questions, to present some guidelines for implementation of EA, and make the reader aware of some of the possible pitfalls of EA development.

To begin a discussion of enterprise architecture, it is important to first obtain an understanding of architecture in general. Architecture is the structure of components, their relationships, and the principles and guidelines governing their design and evolution over time.<sup>1</sup> Architecture is known to be essential when considering the design of a new building or a community; however, architecture is equally necessary when considering the design and creation of complex systems within organizations. Whether a new community is being planned or a business is expanding, several of the same issues must be considered: integrated services, interoperable systems, and efficient operations. The end objective of architecture is the alignment of components under common standards that facilitate change management and ensure integrated and effective operation.

The concept of architecture is comparable at the enterprise level. The Federal Chief Information Officers

(CIO) Council regards an enterprise as an organization supporting a defined business scope and mission and comprised of interdependent resources (people, organizations, and technology) who must coordinate their functions and share information in support of a common mission (or set of related missions).<sup>2</sup> Enterprises exist within commercial businesses and industry, private institutions, as well as in areas of governance. Governmental enterprises are unique because their purpose is not the generation of revenue. These organizations are concerned primarily with the maintenance of basic security and public order. Nevertheless, the federal government is a single enterprise with shared strategic objectives, a common authority structure, integrated management processes, and consistent policies. As is the case in other enterprises, the goal is to optimize resource allocations across the organization to achieve common goals, whether at the local or national level.<sup>3</sup>

## Legislation

Aside from simply being a good tool for business, architecture within the government has been mandated by legislation. In 1996, the *Clinger-Cohen Act (CCA)* was established to improve the way the federal government acquires and manages information technology (IT). The idea was that acquisition, planning, and management of technology should be treated as a capital investment, exactly as a profitable business would be operated. The CCA directs



all federal agencies to establish a comprehensive approach to manage the acquisition, use, and disposal of IT. Though architecture is not prescribed by name in the CCA, it does promote a coordinated, interoperable, secure, and shared governmental infrastructure.<sup>4</sup> A legislative measure that formally mandates the development of architecture for government programs is described in Circular A-130, *Management of Federal Information Resources*. This publication prescribes the development and maintenance of an enterprise architecture to promote the appropriate application of federal information resources.<sup>5</sup> This mandate is intended to establish capital planning and investment control processes that link mission needs, information, and IT in an effective and efficient way. The circular also establishes architecture as *grading* criteria for acquisition

of new systems. In that, architecture is used for the certification of any federal business system modernization effort that exceeds \$1M.<sup>6</sup>

One of the most significant Department of Defense (DoD) level instructions is Chairman of the Joint Chiefs of Staff Instruction 3170.01, *Joint Capabilities Integration and Development System* (JCIDS). JCIDS is intended to identify shortfalls and redundancies in national defense and to develop solutions (materiel and nonmateriel) through a joint collaboration using integrated architectures among the Services. The focus is to resolve military capability gaps with solutions that are *born Joint* with architecting consideration given to uses across the spectrum, not a single Service or mission area. The future state of JCIDS implementation is fully integrated defense networks that eliminate waste and optimize system usage.<sup>7</sup> There are several other DoD directives governing the use of architecture, but at the Air Force level, enterprise architecture is prescribed in Air Force Policy Directive 33-4, *Enterprise Architecting*. The directive assigns architecture development and management, a governance process, as well as the establishment of a repository for architecture products. The Air Force enterprise architecture is to be used as a decision support tool, and guide all IT and National Security System investments.<sup>8</sup>

### Article Acronyms

ACE – Automated Commercial Environment  
 ADM – Architecture Development Method  
 AF EAF – Air Force Enterprise Architecture Framework  
 AFEA – Air Force Enterprise Architecture  
 AFI – Air Force Instruction  
 AFLMA – Air Force Logistics Management Agency  
 AV – All Views  
 BRM – Business Reference Model  
 C4ISR – Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance  
 CBP – Customs and Border Protection  
 CCA – Clinger-Cohen Act  
 CEA – Chief Enterprise Architect  
 CJCSI – Chairman Joint Chiefs of Staff Instruction  
 DoD – Department of Defense  
 DoDAF – Department of Defense Architecture Framework  
 DRM – Data Reference Model  
 EA – Enterprise Architecture  
 EAF – Expeditionary Aerospace Forces  
 eLog-21 – Expeditionary Logistics for the 21<sup>st</sup> Century  
 FDA – Food and Drug Administration  
 FEA – Federal Enterprise Architecture  
 GAO – General Accountability Office  
 HHS – Health and Human Services (Department of)  
 IT – Information Technology  
 JCIDS – Joint Capabilities Integration and Development System  
 LogEA – Logistics Enterprise Architecture  
 MAJCOM – Major Command  
 OV – Operational View  
 PRM – Performance Reference Model  
 SRM – Service Component Reference Model  
 SV – Systems/Services View  
 TAFIM – Technical Architecture Framework for Information Management  
 TAG – Technology and Architecture Group  
 TEAF – Treasury Enterprise Architecture Framework  
 TOGAF – The Open Group Architecture Framework  
 TRM – Technical Reference Model  
 TV – Technical View

### Architecture Frameworks

To facilitate the completion of required architecture, a framework is necessary. A framework addresses architecture components, such as methodology, product descriptions, reference models, categorization, and classification. An overview of the most common architecture frameworks follows.

### The Zachman Framework

One of the first and best known standards for classifying the descriptive models that comprise enterprise architecture is the Zachman Framework. This methodology was based on the belief that a common architectural schema could be used to represent any complex entity. It is depicted as a grid (see Figure 1) that consists of six functional focuses (columns), and then considers those focuses from the perspectives of the stakeholders (rows). The Zachman Framework does not prescribe a particular architecting methodology, and is used to categorize primitive enterprise architecture information. However, the tool can be used to organize data on the enterprise, to define which artifacts to produce and to describe processes.<sup>9</sup> Zachman applied to the Air Force logistics enterprise would include an organization chart to define the high level *who* portion of the framework. At a lower level would be a description of the physical data resident in the logistics enterprise. This framework would be helpful in defining and describing processes associated with the logistics enterprise and provide a good way to determine which artifacts are necessary to model the system.

### The Open Group Architecture Framework

Another framework that provides a detailed comprehensive approach to design, planning, and implementation of architecture is The Open Group Architecture Framework (TOGAF). TOGAF is designed to support four common subsets of an overall enterprise architecture: business architecture, data architecture, application architecture, and technology

	What	How	Where	Who	When	Why	
Scope	Inventory Identification: Inventory Types	Process Identification: Process Types	Network Identification: Network Types	Organization Identification: Organization Types	Timing Identification: Timing Types	Motivation Identification: Motivation Types	Strategies
Business	Inventory Definition: Bus. Entity Bus. Relation	Process Definition: Bus. Transform Bus. Input	Network Definition: Bus. Location Bus. Connect	Organization Definition: Bus. Role Bus. Work	Timing Definition: Bus. Cycle Bus. Moment	Motivation Definition: Bus. End Bus. Means	Executive Leaders
System	Inventory Representation Sys. Entity Sys. Relation	Process Representation Sys. Transform Sys. Input	Network Representation Sys. Location Sys. Connect	Organization Representation Sys. Role Sys. Work	Timing Representation Sys. Cycle Sys. Moment	Motivation Representation Sys. End Sys. Means	Architects
Technology	Inventory Specification: Tech. Entity Tech. Relation	Process Specification: Tech. Transform Tech. Input	Network Specification: Tech. Location Tech. Connect	Organization Specification: Tech. Role Tech. Work	Timing Specification: Tech. Cycle Tech. Movement	Motivation Specification: Tech. End Tech. Means	Engineers
Component	Inventory Configuration: Comp. Entity Comp. Relation	Process Configuration: Comp. Transform Comp. Input	Network Configuration: Comp. Location Comp. Connect	Organization Configuration: Comp. Role Comp. Work	Timing Configuration: Comp. Cycle Comp. Moment	Motivation Configuration: Comp. End Comp. Means	Technicians
Operations	Inventory Instantiation: Ops. Entity Ops. Relation	Process Instantiation: Ops. Transform Ops. Input	Network Instantiation: Ops. Location Ops. Connect	Organization Instantiation: Ops. Role Ops. Work	Timing Instantiation: Ops. Cycle Ops. Movement	Motivation Instantiation: Ops. End Ops. Means	Workers
	Inventory	Process	Network	Organization	Timing	Motivation	

Figure 1. Zachman Enterprise Architecture Framework

architecture. This method originated from the Technical Architecture Framework for Information Management developed by DoD. TOGAF is an architectural process that can be used to complement Zachman’s taxonomical approach. Like Zachman, however, TOGAF does not prescribe architecture products, but instead promotes an architecture development method (ADM) that gives guidelines for architecting. The stages of the development cycle outlined in the ADM provide guidance to the architect. These phases are further decomposed into steps. The ADM cycle is an iterative process, requiring frequent validation of results against the original expectations.<sup>10</sup>

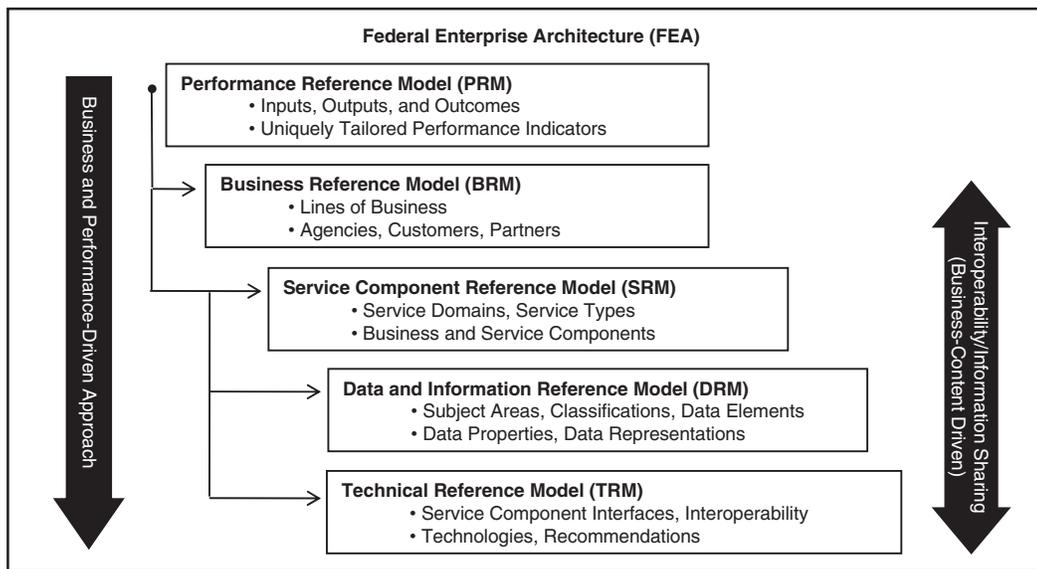
### The Federal Enterprise Architecture

A third architecture framework is tailored to a more specific enterprise; the federal government. The federal enterprise architecture (FEA) is a business approach aimed at developing a more customer focused government that simplifies processes and unifies efforts across agencies. The FEA has evolved from its original form, with significant changes occurring in 2007 and 2008. Currently, three core principles guide the strategic direction of the FEA: the federal enterprise must be business driven, proactive, and collaborative across the federal government; and the architecture must improve the effectiveness and efficiency of government information resources (see Figure 2).<sup>11</sup>

The FEA is comprised of an interrelated set of five reference models, all focused on developing a common language for the enterprise. The first model is the Performance Reference Model (PRM). The PRM is a performance measurement focused on the business of government at a strategic level and assesses the impact of IT investments at this level. It is designed to show the link between inputs and outputs, as well as to identify the practices of effective and efficient organizations within the enterprise. This type of analysis facilitates decisionmaking regarding resource allocation.

The next model is the Business Reference Model (BRM). This model facilitates a functional view of the enterprise rather than an organizational one. Standard business capabilities are identified without regard to what agency is completing them, and a business functions view is defined. The importance of this model lies in proper implementation. The BRM must be incorporated into the architectures and management processes of governmental agencies in order to help accomplish strategic goals of the enterprise.<sup>11</sup>

The Service Component Reference Model (SRM) is a business driven, functional framework used to classify individual service components according to how they support both the performance and business objectives. The SRM helps to recommend service capabilities that will maximize reuse of business and technical capabilities. The Technical Reference Model is a component-



**Figure 2. FEA Reference Models**

of the Air Force Logistics Management Agency (AFLMA). The AFLMA is charged by A4I (Directorate of Transformation) with guaranteeing compliance of architecture to prescribed standards, and eventual management of the LogEA.

### **Air Force Enterprise Architecture and the DoD Architecture Framework**

The vertical columns of the Federal Architecture Federation depict the guidance setting architecture requirements for the DoD and the individual military services. As seen here, the Air

Force has its own enterprise architecture framework (AF EAF). The AF EAF uses the same reference models as the DoD’s FEA, but provides context focused on Air Force strategy and missions. The correlation between the FEA and the AFEA is illustrated in Figure 4.

driven model that categorizes standards and technologies. Again, the focus is to identify and reuse the best solutions. Finally, the Data Reference Model (DRM) is a more flexible, standards-based model that facilitates information sharing among government agencies. The DRM objective is the standardization of data management processes across federal, state, and local organizations as necessary to enable the repeatability of the best processes across agencies by establishing a common language. In support of this objective, DRM contains three standardization areas: data description, data context, and data sharing.<sup>11</sup>

Another issue critical to FEA is the measurement of success. Federal agencies are rated in three main capability areas: completion, use, and results. The completion capability area measures the completion maturity of an EA’s artifacts with respect to performance, business data, services, and technology. The enterprise’s architectures should be well-defined and show traceability among the layers of architecture and artifacts. The use capability area deals with the actual implementation and use of the architecture as it measures the policies and procedures necessary for an organization to develop and manage its EA. The results capability area measures the effectiveness and value of the EA by assigning performance measurements to the EA processes and using these measures to complete analysis of the architecture. The results of this analysis are used to update practices and guidance for the EA. Following measurement in each of these three areas, agencies are assigned a *success rating* based on a green, yellow, and red coding system.<sup>12</sup>

### **DoD Architecture Federation**

Figure 3 depicts the architecture federation of the federal government as it pertains to the Air Force specifically. It is relevant to note the horizontal portions of Figure 3. Each Air Force component is broken down into three subenterprises: agile combat support, warfighting, and infrastructure. The Air Force decomposition is further depicted in Figure 4, showing several mission and major command (MAJCOM) architectures. The Air Force Logistics Enterprise (LogEA) is a subenterprise of the agile combat support mission, and evaluation of the LogEA architecture products is one of the newly chartered mission areas

AFPD 33-04 establishes the AFEA as the method for managing change and understanding complexity in the Air Force environment. The AFEA is ultimately intended to act as a tool to aid in decisionmaking through supporting key decisionmaking processes (capabilities based planning and analysis; planning, programming, budgeting, and execution; acquisitions; and portfolio management), and guiding all IT and National Security Systems investments. Additionally, the AFEA assigns responsibility for the development, evolution, and management of the EA, and institutes a governance process. Air Force MAJCOMs directed to establish enterprise architectures must institute policies, procedures, and guidelines for architecture activities, appoint an architect, and develop and maintain architecture products. Throughout this process these products must be approved and certified as prescribed in Air Force Instruction 33-401, *Implementing Air Force Architectures*.

It was determined by the Defense Science Board that one of the key means for ensuring military systems are interoperable and effective is to establish comprehensive architecture guidance for the entire DoD.<sup>13</sup> The Department of Defense architecture framework (DoDAF) was developed to give direction as to how architecture products should be developed.

The DoDAF is an evolution of the Air Force command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture framework which originally addressed the interoperability of C4ISR specific capabilities. It consists of three volumes. Volume I offers a general overview of the DoD architecture concept and provides guidance for the development and management of DoD architectures. Volume II delves more deeply into the concept, outlining the specific details for the individual framework products. Finally, Volume III shifts in focus to the data for architecture and its uses. The overarching DoDAF structure is organized into four unique views: all (AV), operational (OV), systems/services (SV), and technical standards (TV). The

architecture products associated with each of these views serve specific purposes.

The OV captures the operational nodes of an architecture, their tasks and activities, and interactions and information exchanges required to accomplish DoD operational concepts. The SVs outline the physical systems, required system functionality, and their data exchanges for supporting the operational views. As the architecture matures, the TVs are needed to communicate standards, protocols, technologies, and interfaces to ensure the system will satisfy its operational requirements. Though not depicted in the graphic below, the AV represents aspects of the architecture related to all three views. While the AV products don't present a distinct view of the architecture, they provide information relevant to the architecture as a whole (see Figure 5).<sup>13</sup>

The architectural products outlined in the DoDAF flow naturally from the reference models contained in the FEA, and subsequently the AFEA. The relationship between the AFEA and DoDAF is seen in the developing Air Force LogEA. One of the DoDAF architectural models representing the Performance Reference Model is the AV-1. In LogEA, this product acts as a concept of operations, providing strategic level information including assumptions, constraints, and limitations of the logistics enterprise. Representations of the Business Reference Model are the OV-5 activity models. The OV-5 describes the operations that are generally conducted in the course of

executing the logistics mission. The DoD Supply Chain Material Management Regulation 4140.1 outlines the primary activities resident in the logistics enterprise high-level OV-5; Plan, Source, Make, Deliver, and Return. All lower level activities in the logistics supply chain result from decompositions of these key activities. The Air Force Systems/Service Component Reference Model is represented in the DoDAF SVs. For LogEA, the Systems/Services views are resident in the Expeditionary Combat Support System—the system that supports the logistics supply chain.

## Observations and Case Studies

The frameworks presented here employ different approaches to architecture. While each method has its own focus, some frameworks could be used in complementary ways, and the combination of methodologies can result in synergistic effects. For example, TOGAF describes how to architect. Products outlined in the DoDAF could be employed to document the architecture decisions made in TOGAF methodology. The Zachman Framework can be used to check for completeness in architectural elements and to determine whether or not processes are sufficiently examined. This type of combination often provides a better result than attempting to fit everything into a single framework. The important issue is to find the method (or methods) that works well within the organization's goals and

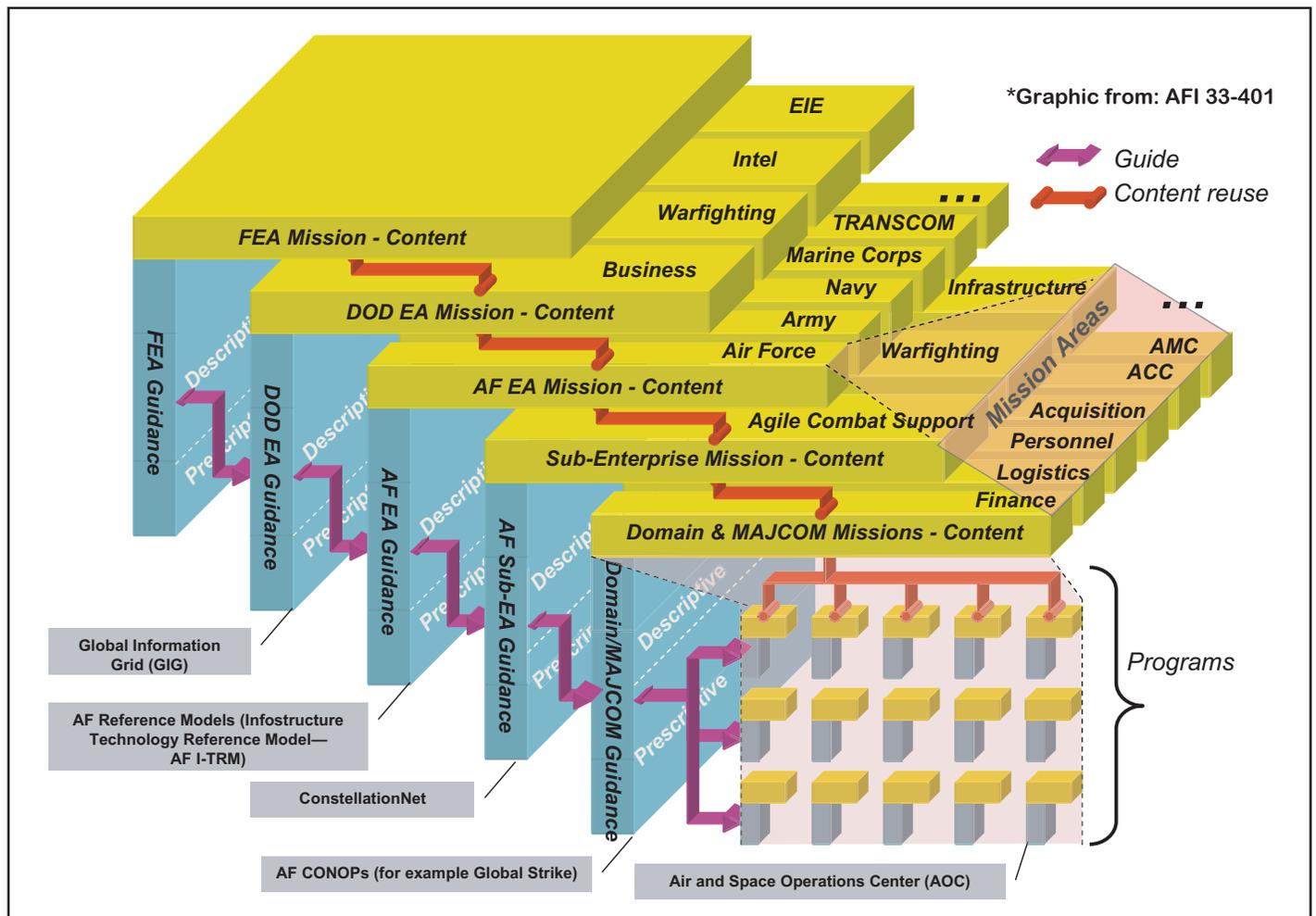


Figure 3. Federal Architecture Federation

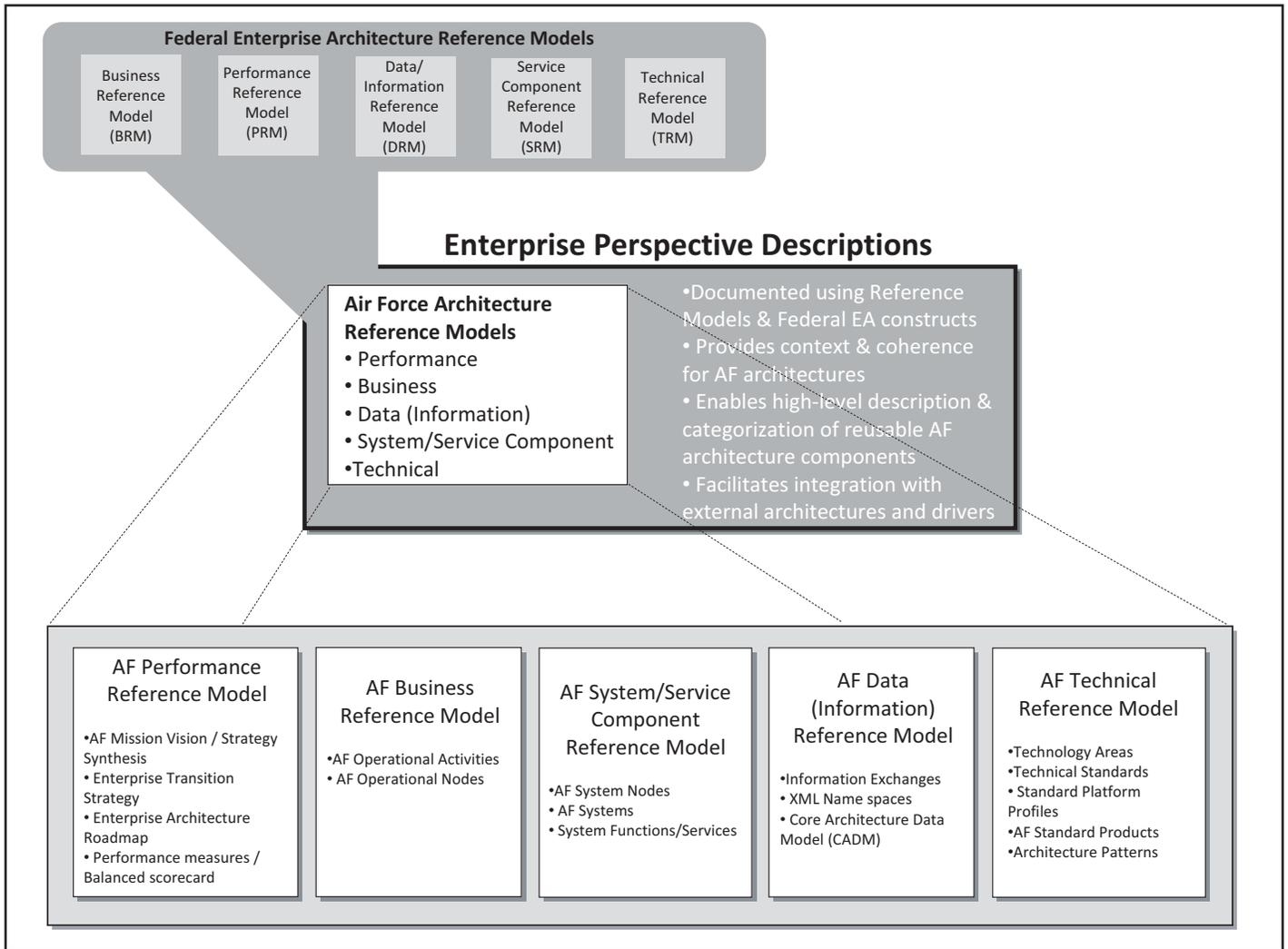


Figure 4. Air Force Enterprise Architecture Framework

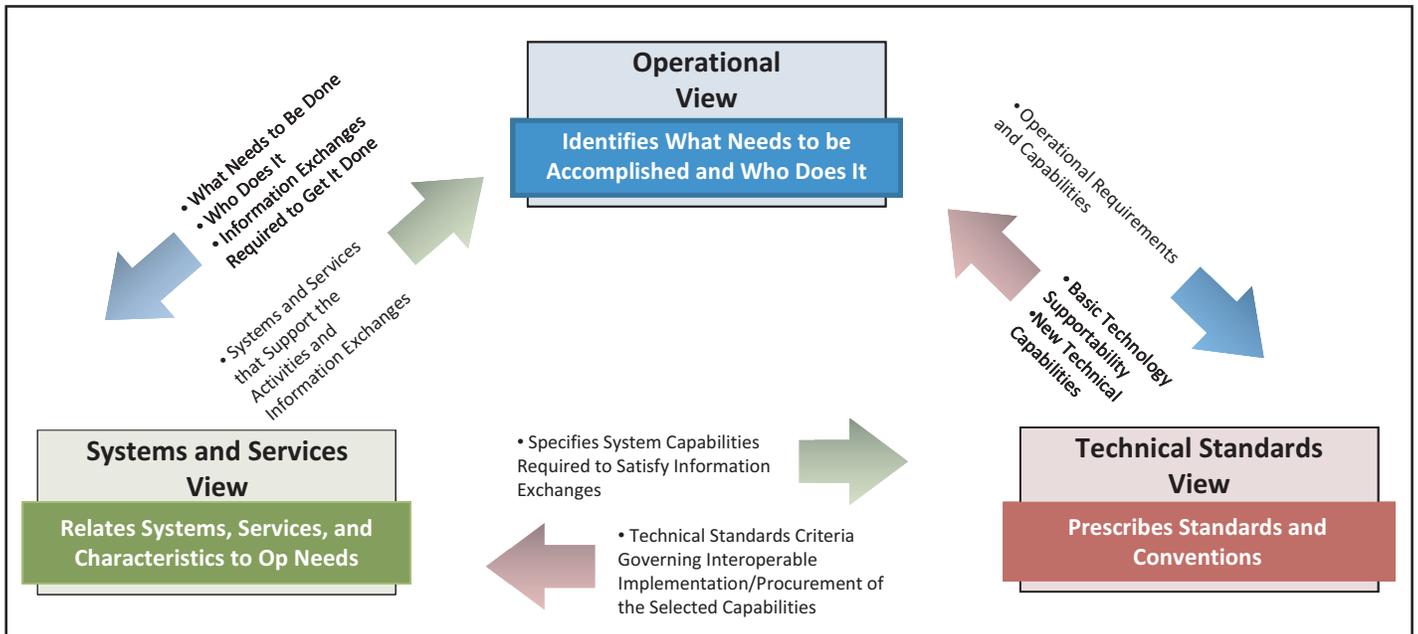


Figure 5. DoDAF Views and Linkages

constraints, always keeping in mind that the focus of using these tools is to unite the resources of the enterprise, and not to overcomplicate the effort.

Though an overarching view of EA has been presented, the concepts and various methodologies can still seem a bit nebulous. A few case studies where enterprise architectures have been implemented will now be examined. The hope is to clarify and give relevance to the discussion, and to highlight the realized advantages as well as some of the difficulties associated with architecture implementation. The following examples illustrate uses of EA within government agencies.

### **Case 1**

The Food and Drug Administration (FDA) is the operating division of the Department of Health and Human Services (HHS), and is charged with ensuring foods, drugs, and cosmetics are safe and properly labeled; drugs and medical devices are safe and effective; blood is safe and in adequate supply, and equipment that uses radiant energy is safe.<sup>14</sup> In response to the President's 2002 Management Agenda, the HHS established its own initiative to consolidate, streamline, and standardize administrative programs. The FDA faced a few key challenges associated with the mandate: necessary alignment of information technology with business strategy, limited funding and resources, lack of standardized processes, and a culture resistant to change.<sup>15</sup>

The FDA began by adding a chief enterprise architect (CEA) position to its strategic IT management staff to oversee this undertaking. The CEA established an EA working group made up of representatives from each of the eight FDA center offices. Technical training was required to ensure personnel could adequately build and use EA frameworks, so representatives from the center offices received Federal Enterprise Architecture certification. The FEA reference models were chosen for architecture development in order to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across the agency. The resulting products created a standardized architecture framework which served as a foundation to develop both baseline and future target EAs. Common governance structures were defined, ensuring each of the departments supported the FDA's goals and objectives. Additionally, an office of shared IT services was developed to provide better alignment between business and IT. This helped the agency to reuse and consolidate applications where possible. This office also enabled the FDA to track IT investments across the entire enterprise.

Though a significant investment was made to develop and maintain an enterprise architecture, benefits were soon realized. The budget for the maintenance of the EA is \$350K to \$500K annually, but the FDA projected a \$10M savings over the first 5 years. This savings comes primarily from eliminating redundant IT costs. The infrastructure now helps to drive consolidation activities across the enterprise. With the transparency of the system, communication and efficiency were improved, leading to improved decisionmaking as well.<sup>14</sup>

The FDA provides a good example of enterprise architecture implementation. Today, the EA working group acts as a review board, selecting IT investments based on the FDA mission and objectives. As a continuing component of the IT strategy, the FDA's EA framework is reducing costs, and improving mission performance.

### **Case 2**

The next case study involves US Customs and Border Protection (CBP). CBP is a component of the Department of Homeland Security and is primarily responsible for keeping terrorists and their weapons out of the US. The scope of this mission is threefold: covering border control, trade, and travel within the US. Presently, CBP employs 41,000 personnel who enforce hundreds of US regulations, including immigration and drug laws.<sup>16</sup>

Not all implementations of enterprise architecture are as clear-cut or initially successful as the FDA example. CBP encountered significant problems in earlier stages of its architecture development. Beginning in 1997, the US Customs Service planned to invest over \$1B in a modernization effort to create an automated commercial environment (ACE) focused on certain core missions. In 1999, the Government Accountability Office (GAO) found that CBP was not managing this effort in a cost effective way. The GAO found serious weaknesses in architectural definition, investment management, and software development and acquisition. It was recommended that Congress withhold funding until these deficiencies were resolved.

CBP began preparing a new strategy starting with the development of the US Customs Modernization Program management organization. The organization is charged with establishing an EA systems concept for the ACE. The goals of the concept were to govern the modernization processes, align investments with strategic goals, and turn the CBP into a more performance based organization. A task force consisting of a planning group and a technology and architecture group (TAG) were created. The TAG was responsible for developing the enterprise architecture. The EA was a collaborative effort and involved stakeholders from each CBP business unit. A cost analysis, along with a metrics program to measure the benefits of implementing the EA was considered from the onset. The GAO worked in conjunction with CBP, validating their efforts throughout the process.

CBP's architecture ensures that IT investments are properly aligned with the architecture. Similar to the FDA, focus was placed on increasing IT standardization, minimizing duplication, providing better justification for IT spending, increased efficiency, and better responsiveness to customer needs. CBP produced the architecture using the four FEA reference models, and System Architect was used for modeling purposes. Further, the EA framework has evolved and, like the Air Force's AFEA, an enterprise-specific Treasury Enterprise Architecture Framework (TEAF) now defines all artifacts contained in the CBP EA.

CBP met with many of the same obstacles to architecture implementation as did the FDA. Initially, a major culture change was required within IT. Systems developers were not optimistic about compliance with new processes, standards, and controls. Development of an EA was also a major time commitment, taking 18 months to realize the initial functioning EA. There was also an upfront cost of \$5M associated with the effort, and a continuing cost of \$2M annually to update and maintain the EA.

Though CBP had a rocky start in developing EA, eventually the management weaknesses identified by the GAO were resolved and funding was restored. In addition to this, benefits are now realized. Evaluation processes have confirmed that over a \$30M return on investment has been made, with over \$5M of these savings resulting from the elimination of duplicative

systems. The IT infrastructure is much less complex now, and stovepiping of data, technology, and systems has been eliminated. Finally, change management is also facilitated, with the development of a *to be* architecture blueprint ushering in several new systems acquisitions.

## Air Force Logistics Enterprise Architecture and the AFLMA

The AFLMA was recently given responsibility for the evaluation of LogEA. LogEA is intended to guide the transformation of the Air Force supply chain, and to stand as the single authoritative source of process and system models for this logistics chain. The current system must evolve into a rapid response, dynamically reconfigurable, integrated network, supporting the expeditionary aerospace forces (EAF) concept at home and in deployed locations.<sup>17</sup> Ultimately, the intent of LogEA is to deliver mission capability while maintaining affordability.

Several transformation initiatives have been implemented as part of the EA execution plan. This campaign, known as Expeditionary Logistics for the 21<sup>st</sup> Century (eLog-21), is intended to capture both the future vision and the transformation path for the Air Force logistics enterprise. LogEA is the operational and systems architecture that will communicate and guide the vision of the eLog-21 campaign.<sup>16</sup> The impact of these eLog-21 initiatives is measured against the high-level goals to improve operational capability while minimizing costs.

The eLog-21 transformation initiatives are divided into 11 cost categories.

- Depot maintenance
- Depot level reparable
- Aviation fuels
- Consumables
- Sustaining engineering
- Contract service
- Military personnel
- Civilian personnel
- Software maintenance
- Other operations and maintenance
- Critical space operations

Each of the eLog-21 initiatives is classified as IT or non-IT, and architecture requirements are determined according to this classification. Artifacts are submitted to AFLMA for a review to verify LogEA compliance, according to the published LogEA Compliance Plan. The result of this process is an integrated set of enterprise-wide priorities which will reduce costs by improving the planning and execution of procurement and production activities.<sup>16</sup>

## Challenges

It is clear that the lack of a system architecture can contribute to increased costs and subsystem problems, but even in successful architecture developments, common difficulties seem to arise. As the AFLMA manages LogEA, it is valuable to highlight some of these challenges.

## Strategy

The cornerstone of a successful architecture begins with a strategic vision. This point is reflected in the AFEA Performance Reference Model. This model prescribes a roadmap for the entire architecture development as well as performance measures to calculate the success of the effort. This involves well-defined direction from the key sponsors and stakeholders that is directly traceable to the Air Force mission area under consideration. As illustrated in the case studies, the vision and scope for both efforts were clear, and architecting teams had focus and, most importantly, a shared concept of the effort. The CBP case study specifically illustrates the implementation of performance measures and metrics to calculate the benefit of implementing architecture. Cost/benefit analysis is a vital point in the decision to develop architecture. An organization must be willing to invest in the underlying organizational and cultural structures to support the EA, and be absolutely certain that these investments will pay dividends in the future.

## Culture and Senior Commitment

Senior stakeholder commitment is also essential to initiating architecture development. Though policy direction ensures commitment from Air Force leadership regarding architecture development, other associated issues arise. It is crucial that organizations are creating artifacts with the strategic vision in mind and not simply to fulfill requirements and meet deadlines. The purpose of architecture can be summed up in one idea: optimizing limited resources. If focus shifts from this idea to simple fulfillment of requirements, the benefits of architecture will never manifest. To help guarantee effectiveness, the mandate to develop enterprise architecture should also provide for resources toward additional personnel, education, and training for those developing and evaluating architecture, and reasonable deadlines. Ideally, enterprise architecture development should focus first on understanding the existing process (as-is), and then the desired future state (to be). This practice lends support to the change management capability of EA. Products should be incremental and iterative, not a static set of artifacts to be archived and then forgotten.

## Cost

With these ideas in mind, another issue comes to light; that is, architecture costs money. As shown in the case studies, both the FDA and CBP established a start-up budget as well as an annual maintenance budget for development and continuing management of the EAs. Many eLog-21 initiatives employed contractor support for architecture development. Attention should also be given to sustainment of the architecture products either internally, or with persistent contractor support. Ideally, contractor support can effectively be used to initiate enterprise architecture development when conducted in conjunction with permanent party personnel who can exercise continuing maintenance of the EA. Many architecture projects are overstaffed at the onset if critical architectural work needs to be expedited, which may indicate that an organization is not investing sufficient time in the architecture analysis and development.<sup>18</sup> DoDAF version 1.5 warns that the architectural views are not important; the key issue is the integrity of the data used to produce the views.

## Communication

The nature of enterprise architecture is to capitalize on horizontal integration; standardizing processes and eliminating redundancies; which leads to another possible pitfall: communication. Some organizations charged with development of LogEA artifacts display a lack of communication across organizations, and cross flow of information among geographically separated organizations is an ever present issue. Without adequate communication between eLog-21 initiatives, systems that need to be integrated and interoperable may not achieve the overall goal. Some of the initiatives are so expansive that several large architecture teams are employed in disparate locations for artifact development. Significant differences in process understanding and even architecture styles are evident in many artifacts submitted for approval. If processes cannot be standardized within a single organization, it is easy to see how communicating vital information between agencies would be difficult. This problem of standardization is apparent throughout all levels of LogEA.

## Standardization

Though all architecture products are measured by their adherence to the DoDAF by way of the LogEA Compliance Plan, there is no prescribed methodology or software package for architecture modeling. Though different product suites were used to develop enterprise architecture in each of the case studies, there was standardization of software and training for each project. Software integration and interoperability is a key element of enterprise architecture, so it would seem appropriate to ensure the same interoperability for all architecture developments. This is problematic as artifacts are approved and certified. Original products cannot be maintained in a central repository due to the lack of standardization among software, and it is a point of discussion how maintenance and archiving of the LogEA will be accomplished.

## Conclusion

It has been said that the architecture of an enterprise exists, whether it is explicitly developed or not. By virtue of process, system, and technical make up, architecture is inherent in all organizations, even if it is not formally defined. The discipline of enterprise architecting allows the capitalization of the potential effectiveness and efficiency of an organization, while minimizing cost. A well established EA also guides acquisition of new technologies and facilitates change management and transformation. The institution of enterprise architecture has emerged as common practice within commercial industry, and is mandated now for all federal enterprises. Though enterprise architecture is not a topic requiring expertise for every member of an organization, it is valuable to have a fundamental understanding of what it is and why it is being used. This article

was intended to provide the reader with a fundamental understanding of the background, practices, and possible complications associated with enterprise architecture. Though it is a relatively new mandate within the Air Force, EA will offer substantial benefits if properly implemented throughout the enterprise.

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*Because of my wartime experience, I am insistent on the point that logistics know-how must be maintained, that logistics is second to nothing in importance in warfare, that logistics training must be widespread and thorough....*

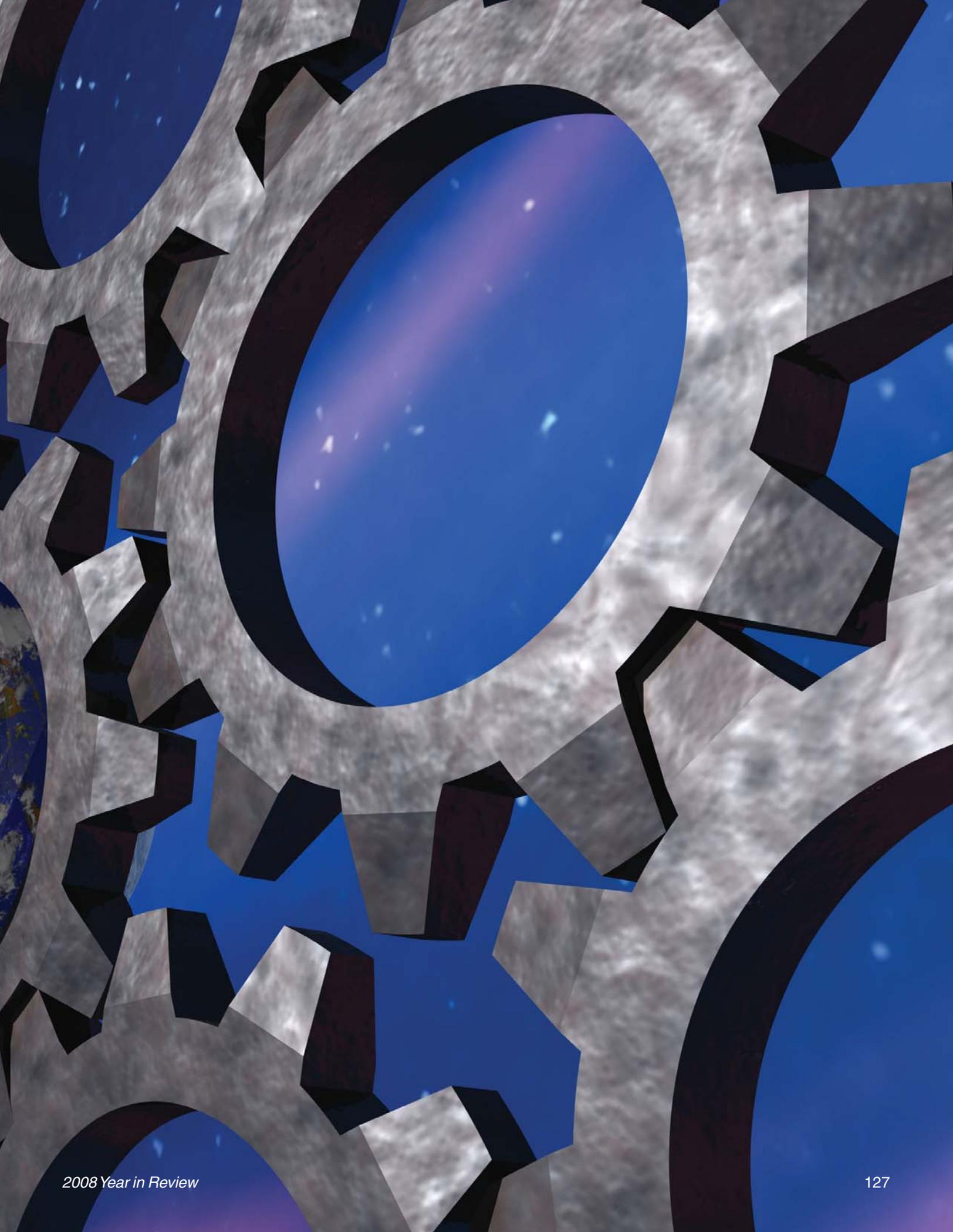
—Vice Adm Robert B. Carney, USN

Lieutenant Colonel Kirk Patterson, AFLMA

# Continuing the Tradition

**W**e have all heard the phrase, “flexibility is the key to airpower,” but today, never has it been so vital to supporting the Air Force. During this critical time of change and increased deployments, flexibility is the tool needed to support the Air Force’s logistics research needs. In 2006, we reorganized by combining the Logistics Studies Division with the Logistics Innovation Division. The reorganization was in response to changing Air Force needs, and thus enabled us to better manage personnel. However, we have recently split those divisions again, as A4I has tasked us to take the lead on numerous activities. This reorganization allows a small group of people to focus on the increasing number of studies and activities surrounding the Expeditionary Combat Support System and the Logistics Enterprise Architecture. An additional external stimulus impacting our ability to support the Air Force has been the number of deployed AFLMA members in 2008.

Despite the challenges of 2008, we continued our tradition of providing innovative solutions to some of the Air Force’s most difficult and complex logistical problems. For example, we completed a study on the management of the excess International Organization for Standardization containers after the Air Force munitions Afloat Prepositioned Fleet was reduced from four ships to two ships. Our analysis indicated that 57 percent of the containers could be removed from the Air Force inventory, and if transferred to Army Intermodal Distribution Platform Management Office, \$16M in expenditures could be avoided. Another tremendous success the Agency is proud of is the completion and publication of the second edition of the *Contingency Contracting: A Joint Handbook*. The latest edition incorporates material from Silver Flag, Defense Acquisition University (DAU), and many other sources and thus has become a source for training both new and experienced contracting officers. In fact, DAU changed the curriculum of several contracting classes to match the subject matter contained in the handbook.



# Deployable Distribution Center

The Deployable Distribution Center organization consists of two main components—a forward deployed warehouse (FDW) and a theater consolidation shipping point (TCSP). It was developed as a fully deployable organization, modular and scalable in design and comprised of Defense Logistics Agency employees and equipment. The FDW provides the combatant commanders and the Services with the required sustainment inventory needed to accomplish their missions. The TCSP component provides cross-docking and distribution operations required to keep sustainment and retrograde stocks flowing into and out of theater.

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**Donald G. Weir, Turn Around Factor Inc.**  
**Major Ben Skipper, AFIT**  
**Captain Jason Wolff, AFLMA**  
**Dale Watkins, ICF International**

This article provides an overview of an emerging Defense Logistics Agency (DLA) sustainment capability known as the deployable distribution center (DDC; designated as DDXX). This article describes how the DDC provides improved theater distribution support to combatant commanders (CCDR).

The Air Force recently conducted a Title X Wargame known as Unified Engagement 2008 (UE 2008) to examine the challenges facing commanders in the 2020 time frame and to examine new concepts expected to be in use at that time. UE 2008 provided DLA with an excellent opportunity to showcase the DDC concept by highlighting its intended capabilities and demonstrating what DLA could deliver. As a result of game play, the DDC proved to be an invaluable asset to the CCDR by providing uninterrupted sustainment flow from the seaport of debarkation (SPOD) and the aerial port of debarkation (APOD) in support of ground, naval, and air operations.

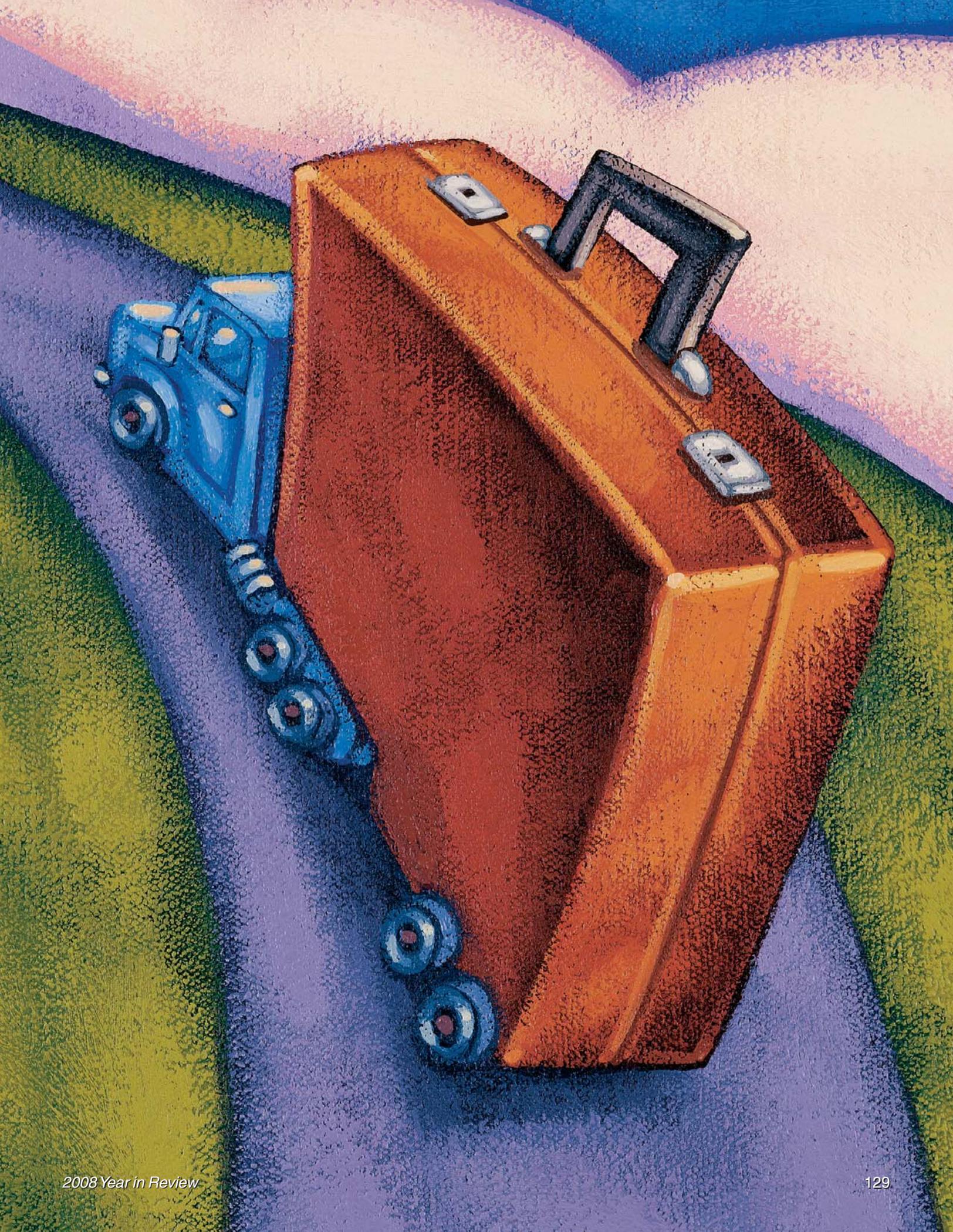
## **The Distribution Challenges**

During the first Gulf war, Operation Desert Shield/Desert Storm (DS/DS), the Services experienced numerous theater distribution problems resulting in a massive buildup of cargo containers at the ports. As forces continued their rapid buildup in Saudi Arabia, sustainment flow slowed dramatically

because of an inability to efficiently identify and process cargo containers arriving at aerial and sea ports of debarkation (A/SPOD). Consequently, as the number of containers began to surge, the volume produced an *iron mountain* of frustrated cargo. There were many problem areas that caused the huge system backlog including cargo documentation, uncommunicated changes to operational requirements, and multiple *fiefdoms* within a single process. In short, there was little visibility of what was sent, where it was in the pipeline, or when (or if) it was received by the ultimate customer.

Immediately after DS/DS, the United States Transportation Command (USTRANSCOM) and the Services began work on identifying and solving theater distribution problems. Initial efforts to solve intransit visibility challenges focused on technology solutions, such as the use of radio frequency identification (RFID) tags and movement tracking systems. Intransit visibility of the movement of cargo from the *factory to the foxhole* remains an issue today and continues to be worked throughout the Department of Defense (DoD).

While dramatic improvements in this area have been made, lessons learned (some old and some new) from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) once again highlighted the need for improvements in the theater distribution process. As the United States began to deploy forces



into Kuwait (a prelude to OIF), and later in Iraq as offensive operations began, it again experienced theater distribution problems, receiving materiel faster than it could be processed. As a result, the customer wait time (CWT) was greatly extended while many items never reached the customer at all. Conversely, retrograde proved to be an equally daunting challenge in that there was little visibility of the serviceable excesses generated in-theater and minimal systems for redistribution. Also, the disposal of excess or unserviceable property, including demilitarization, proved more complicated than originally anticipated.

In addition to the DS/DS and OIF/OEF lessons learned, the Focused Logistics Wargame (FLOW) 2003 emphasized the need for improvements in theater distribution. The FLOW 2003 Executive Summary concluded, in part, that:

Strategic and theater distribution systems need to be better synchronized in order to improve operational effectiveness. DoD needs a flexible, predictive, and visible distribution pipeline that begins at the source of supply, goes to the point of consumption or use, and then back again.

This led to a recommendation that:

DLA should pursue the development of a fully deployable strategic distribution capability (personnel and equipment) and work with the CCDRs' planning staffs to leverage this improved logistics support in the contingency planning process.

These comments point to a solution that is bigger than simply applying new technology to the problem and that a more holistic, systemized solution is in order.

## Finding a Solution

In response to identified DoD theater distribution problems, DLA leveraged its core competencies by building a Deployable Distribution Center capable of solving many past distribution challenges (see Figures 1 and 2).

The Deployable Distribution Center organization consists of two main components—a forward deployed warehouse (FDW) and a theater consolidation shipping point (TCSP). It was developed as a fully deployable organization, modular and scalable in design and comprised of DLA employees and equipment. The FDW provides the CCDR and the Services with the required sustainment inventory needed to accomplish their missions. The TCSP component provides cross-docking and distribution operations required to keep sustainment and retrograde stocks flowing into and out of theater and to preclude the age-old problem of building the infamous iron mountain.

The organization was designed with expeditionary flyaway packages that quickly deploy into theater and can be operational within a matter of hours upon arrival. The expeditionary package is inserted into the timed-phased force deployment data (TPFDD), arriving early in the force flow into the Joint operations area (JOA). Its impact upon force flow is minimal in that by having sustainment freight in-theater early, it maximizes the airlift capability available to move the fighting force. In effect the system customizes logistics strategy by *pushing* a relatively small amount of inventory to a known point, near the ultimate demand, and allowing deployed forces to *pull* requirements as necessary.

This new process actually addresses two problem areas seen in DS/DS and OEF/OIF. First, it eliminates the shipment of mass quantities of multiple items with little knowledge of demand (the iron mountain). The expeditionary packages are, in effect,



Figure 1. Deployed Distribution Center in the Field

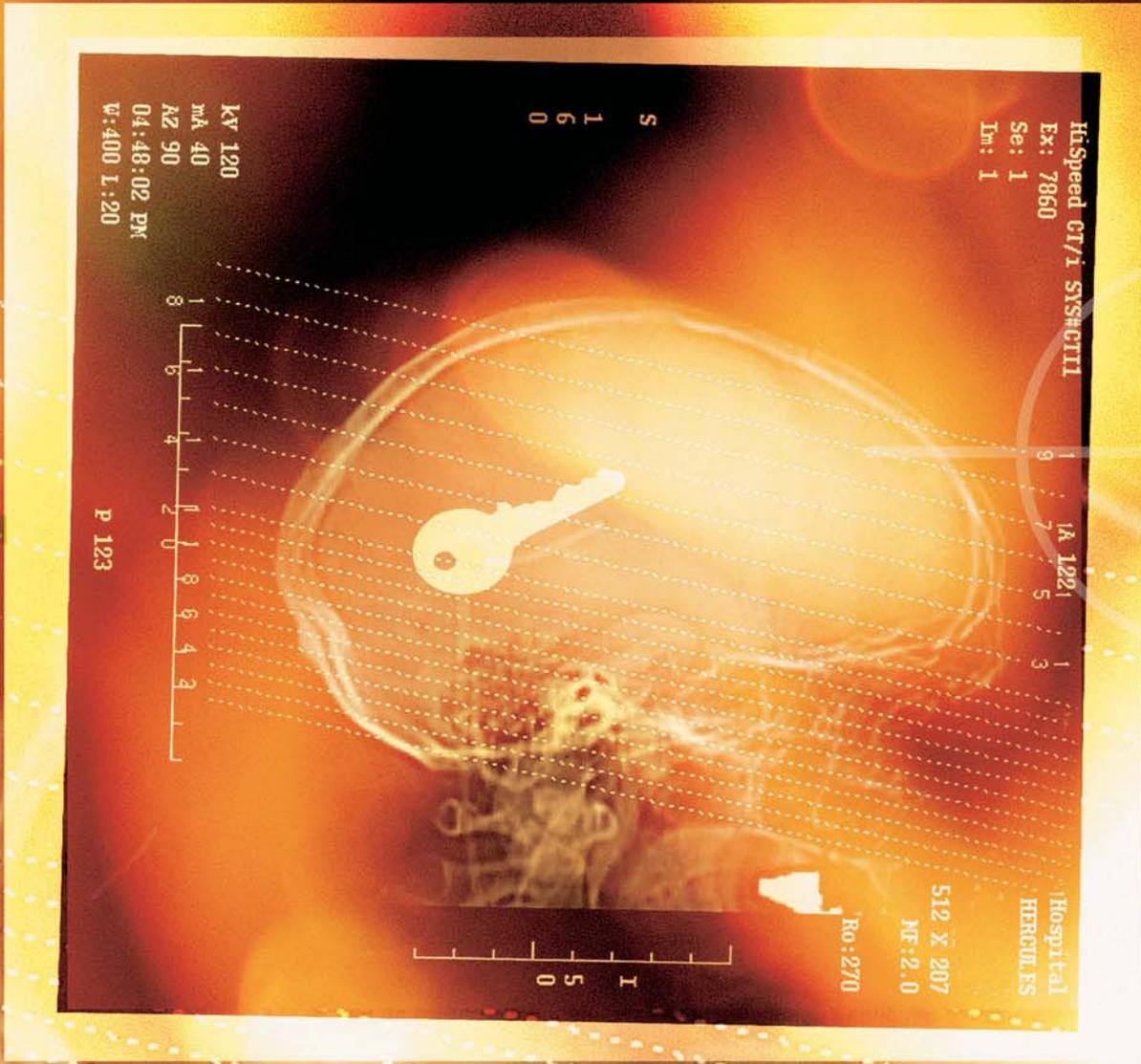


Figure 2. Deployed Distribution Center in Operation

customized to meet mission requirements with items that are expected to be in high demand. Second, by pushing the packages forward (closer to the customer), the lead time for customer orders is dramatically reduced. The Deployable Distribution Center packages can deploy from continental United States DLA depots directly to the JOA. It reduces the customer wait time through improved control, management, and visibility of sustainment material flowing from national sources into the theater. Additionally, the Deployable Distribution Center will greatly increase materiel availability within the theater thereby reducing the Services in-theater logistics footprint.

The DLA Deployable Distribution Center's participation in UE 2008 demonstrated that it is a viable and valuable component of the Joint theater distribution team providing world-class sustainment support to the warfighter. In the UE 2008 scenario, forces were required to move quickly into position, fight, and sustain for an extended period of time. Several restrictions were intentionally placed on the logistics and supply chain strategy for the event, including APOD/SPOD availability, threatened lines of communication, and even attacks on information networks that provide intransit visibility. The availability of the DLA DDC expeditionary packages enabled the sustainment during reconstitution of operational forces and ensured the success of the entire operation.

While there is always room for continued improvement, the DLA DDC is taking a major step towards increasing operational effectiveness and efficiency in deployment operations. Experience, garnered through real world contingencies, as well as wargames (such as UE 2008), offers the opportunity to fine tune innovations and build upon today's capabilities for tomorrow's warfighter.



generating transformation solutions today;  
 focusing the logistics enterprise of the future

# AFLMA

Air Force Logistics Management Agency

<http://www.aflma.hq.af.mil/>

## Introduction

Since the invasion of Iraq and the ongoing operations against terrorism, contingency contracting operations have taken on a whole new perspective. Air Force contingency contracting officers now comprise approximately 70 percent of the military contracting capability postured to support the Department of Defense (DoD). However, most of these taskings are not in direct support of Air Force missions. In fact, most were in support of the Army or operations in a Joint environment. In light of the Air Force's high operations tempo and coupled with the fact that contracting is a stressed career field, the Air Force sought to find a way to better meet the overall requirements of the national defense strategy. To meet this challenge, the Office of Under Secretary of Defense for Acquisition, Technology and Logistics, Defense Procurement and Acquisition Policy (OUSD [AT&L] DPAP) sponsored the Air Force Logistics Management Agency (AFLMA) in the development of a

Joint contingency contracting handbook. The following paragraphs will highlight AFLMA's efforts to produce the first and second editions of the handbook.

### In the Beginning

In June of 2006, AFLMA began exploring the idea of publishing a new contingency contracting guide. AFLMA last published the Air Force contingency contracting guide in 2003, and since then, contingency contracting has changed dramatically and has taken on a whole new meaning. Recent deployments to Iraq, Djibouti, Afghanistan, Pakistan, and other countries had been anything but Service-specific. Rather, most deployments were centered around a truly Joint Service environment. Not only had this aspect of contingency contracting changed,

but deployments were leaning toward operating in a more sustained environment. With this in mind, AFLMA built a briefing to introduce its concept to OSD for a new *Joint* contingency contracting handbook.

OUSD [AT&L] DPAP had already been working with Secretary of the Air Force, Acquisition (SAF/AQC), as part of a Joint Contingency Contracting Working Group (JCCWG), to develop Joint contingency contracting policy. This new policy was envisioned to lay the groundwork for Joint contingency contracting operations and the deployment of a Joint framework for contingency contracting during current and future contingency contracting operations. AFLMA's vision was directly in line with what OSD was working to accomplish, except AFLMA's time line provided an end product to the warfighter faster. AFLMA briefed their vision to OSD and received sponsorship to participate in the JCCWG and to develop a new Joint contingency contracting handbook for the DoD contracting workforce. The working group had two main objectives.

- Develop Department of Defense Federal Acquisition Regulation Supplement (DFARS) 218 *Procedures, Guidance, and Information* (PGI)

# Evolution of a Handbook

## *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*

**The development of a handbook benefits not only the Air Force, but the entire Department of Defense contracting community by synchronizing and accelerating contingency contracting transformation efforts of all four Services.**

**Technical Sergeant Amy Young,  
AFLMA**



- Develop a pocket-sized Joint contingency contracting handbook

By working on the JCCWG, AFLMA was able to capitalize on the research performed by the group. Additionally, the JCCWG became a Joint conduit to facilitate the development of the first edition of the handbook.

## Evolution of the Joint Contingency Contracting Handbook

AFLMA initially proposed to OSD that the handbook be called a “Joint Contingency Contracting Guide.” However, the first objective of the working group was to develop Department of Defense Federal Acquisition Regulation Supplement (DFARS) 218, *Procedures, Guidance, and Information (PGI)*. It was completed in January of 2007, and was labeled as a *guide*. The AFLMA guide became known as the “Joint Contingency Contracting Handbook” and later became *Contingency Contracting: A Joint Handbook*.

AFLMA began specifically focusing on the research and development of the pocket-sized handbook in February of 2007. Prior to the handbook initiative, no standardization existed within DoD as to how each Service trained its contingency contracting officers (CCO). Each Service had its own contingency contracting handbook and training plan, which was in many ways unique and tailored to the individual Service it supported. As a result, CCOs showed up to the fight with different training backgrounds and experience. This equated to a twofold problem for the warfighter: lack of training standardization and deployment experience—two significant factors contributing to past US Army procurement problems in the United States Central Command (USCENTCOM) area of responsibility (AOR).

Major William Long of the AFLMA devised an innovative plan that would standardize contingency contracting and fulfill the Joint training needs across the entire DoD. The plan included accompanying the JCC handbook with an electronic DVD filled with hundreds of contingency contracting tools, templates, checklists, Web site addresses, and standardized training modules that maximizes available resources for deployed CCOs. An integrated approach was stressed, which earned DoD-wide support and aligned future budgets and planning functions towards a unified strategy. By focusing all four Services toward a unified strategy, the time and cost savings generated by the initiative would be significant and repeatable year after year. More importantly, this standardized training approach ultimately provides deployed CCOs with a more robust, efficient, and effective means of supporting the warfighter.

## Developing and Publishing the First Edition Handbook

A team of functional experts from across DoD was established to form two Joint Contingency Contracting working groups. The *red team*, which assisted in the review of the handbook and the *training team*, which assisted in the development of the training portion of the handbook. The AFLMA-led training team developed more than 350 standardized contingency training modules and 230 plus test questions aiding the unit training managers in the performance of monthly CCO training. This proved critical for the highly stressed and deployed career field with little or no time to develop and implement unit level CCO

training programs. The team also collaborated with sister Services and linked the handbook DVD back to 90 other Service contingency guides and handbooks for Service-specific guidance.

## Contingency Contracting: A Joint Handbook

The first edition of the handbook—*Contingency Contracting: A Joint Handbook* was published in December 2007 and would go through three printings—more than 10,000 copies. The handbook and its accompanying DVD facilitated the training and support of acquisition professionals from all branches of Service averaging over \$5B a year in contingency spending to support the warfighter. It captured Joint contingency contracting doctrine and described the military’s capabilities, best practices, and fundamental principles that should guide the employment of US contracting forces in a Joint environment. The versatility of the handbook and DVD provided CCOs the flexibility to train while in garrison or on the battle front, allowing CCOs to hit the ground running and travel lighter and more lethal than ever before. It was a history-making publication and the development team has been recognized with several awards. *Contingency Contracting: A Joint Handbook* was recognized as a world-class training tool shaping the future of DoD contingency contracting and it would form the basis for the second edition handbook.

The handbook was lauded by the Director for Defense Procurement and Acquisition Policy as an “interagency solution” to US Army procurement problems in Iraq, Afghanistan, and Kuwait. In fact, the impact of handbook was immediately noticed by the Gansler Commission, a 45-day commission on US Army acquisition and program management reform, citing it as a “key recommendation” in their final report to Congress.

## Crafting the Second Edition— Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century

The ink was hardly dry on the first edition of the handbook when the AFLMA team began coordinating the production of the second edition of the handbook. To do this, feedback from users of the book was collected, additional research performed, workgroups were established, and workshops scheduled. As with the original handbook, functional experts from across the DoD would participate in creating the new handbook.

Two workshops were held to develop *Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*. The first was held in June 2008 in Montgomery, Alabama and the second in September 2008 in Colorado Springs, Colorado.

Activities for the first workshop focused on the following:

- Reviewing templates and training used in the field to prepare for deployments
- Reviewing and agreeing on new material to be included in the new handbook
- Activities to transform the existing handbook from an Air Force-centric handbook to a more Joint handbook

At the conclusion of the first workshop, the AFLMA team consolidated and validated every comment or idea developed during the working group. A working draft of the second edition was then developed.

For the second workshop many of the same representatives from the first working group attended. However, other representatives were invited to provide a fresh perspective on the concepts and materials being developed. A significant result of this workshop was integrating the majority of changes and updates that were identified during the first working group.

Other handbook enhancements were developed during the second workshop. These were as follows:

- Critical CCO training was identified and redundant training removed from the document bank
- Event-driven scenarios were developed. In addition to the 150 individual training scenarios available in the first edition of the handbook DVD, 4 event-driven training scenarios were developed. The event-driven scenarios included several subscenarios that address natural disasters.

Following the second workshop, the AFLMA team reviewed and evaluated the tabled discussions and revised the handbook draft to include changes required by the revised Joint Publication (JP) 4-10, *Operational Contract Support*, released October 2008. At the same time, the editorial staff at the AFLMA completed the layouts, charts, tables, and graphics to be used.

One of major changes during the production of the second edition was to upload all the information provided on the handbook DVD to a Web site accessible to CCOs in the field or at home station. Suzanne White (50<sup>th</sup> Contracting Squadron, Shriever AFB Colorado), Mary Peate (LMI, DPAP), and the AFLMA development team began the process of filtering all the data from the new DVD to a public Web site owned by DPAP in December 2008. The information made available through this process included critical information checklists, updated tools, templates, training scenarios, and interactive games. The Web site is located at: <http://www.acq.osd.mil/dpap/pacc/cc/jcchb/index.html>.

Following an extensive review and peer review, the new handbook was published and printed in June 2009. The initial press run was more than 10,000 copies. Delivery of the handbook to the contracting community was completed in July 2009.

### What's New in the Second Edition and Accompanying DVD

- Expanded chapters and extensive new information.
- New or expanded cultural awareness training, antiterrorism, and force protection modules.
- Seventy-five core competency process checklists incorporated on the DVD.
- DVD linked to more than 275 Web sites that address situations a CCO may encounter in the field.
- DVD enhanced and more than 180 additional questions added to the games. The Machery/Jeopardy game has a total of 15 categories that will randomly be selected for each game played. A Combat ACE game is now associated with each chapter. These interactive games enhance the contingency contracting learning environment.

The most significant addition to book, however, is a selection of 12 critical checklists in the back of the book. These checklists provide a quick decision tool for deployed CCOs.

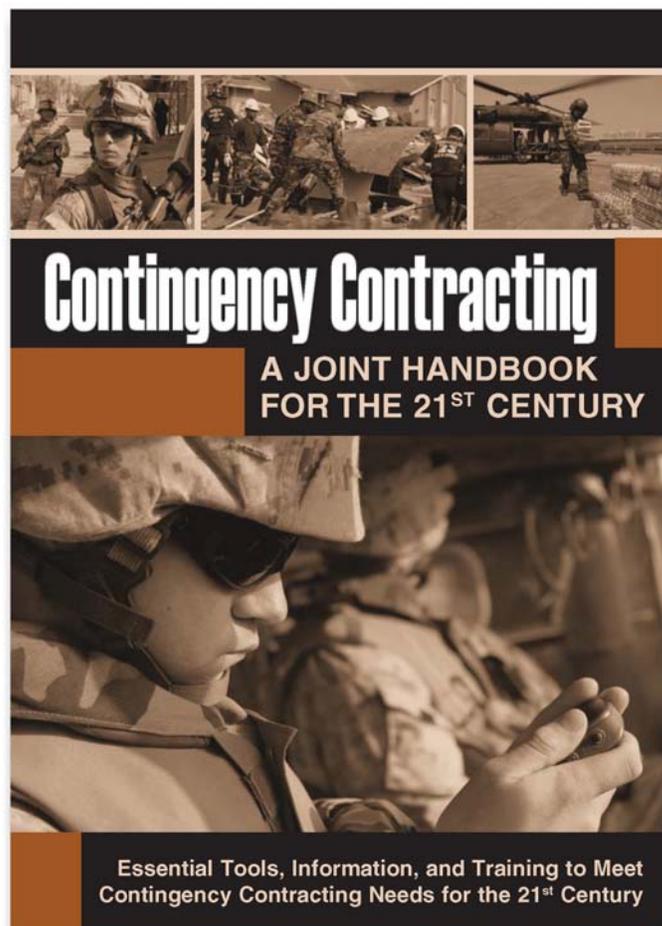
## The Way Ahead

Since 2001, contingency contracting has been all about change. Over the past 8 years, contingency contracting support has evolved from purchases under the simplified acquisition threshold to major defense procurement and interagency support of commodities, services, and construction for military operations and other emergency relief, such as Hurricane Katrina. Today, this support includes unprecedented reliance on support contractors in both traditional and new roles, including private security and contracting support. Keeping up with these dramatic changes, while dealing with situations around the globe, is no doubt an ongoing challenge.

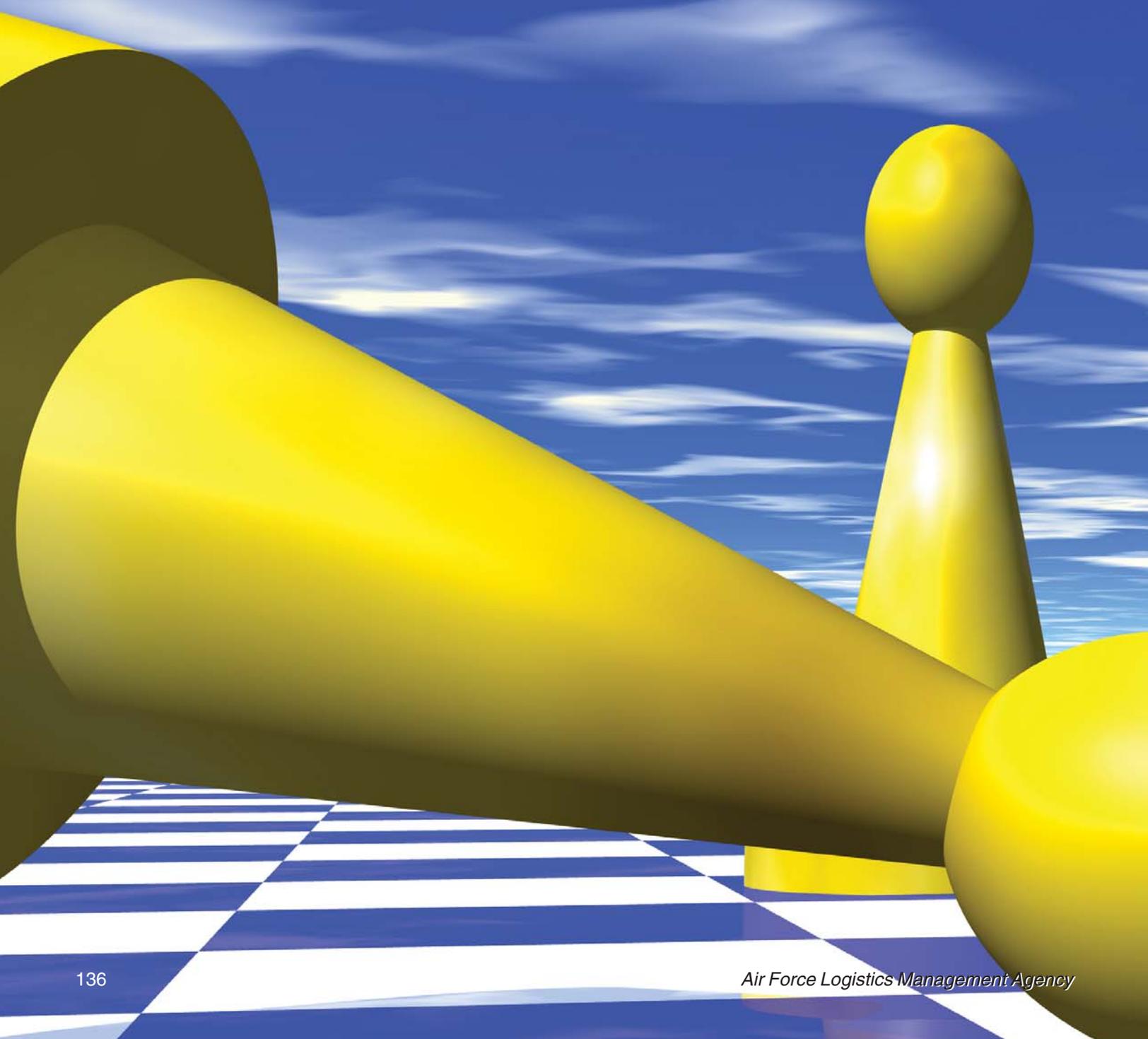
The latest edition of the handbook provides a pocket guide that complements training already received through other sources, enhances support for multiple environments, and streamlines training across the DoD. As deployed and disaster environments change, the handbook needs to evolve to match the demands of those environments. The way ahead for the handbook is to ensure that it is updated or revised in a timely manner.

## Conclusion

The development of a handbook benefits not only the Air Force, but the entire DoD contracting community by synchronizing and accelerating contingency contracting transformation efforts of all four Services. Both editions of the handbook eliminated redundancy and standardized core contingency contracting training for the DoD.



# Wargames, Mod



Captain Jason Wolff, AFLMA

# Planning, and Simulation

**H**as it been a year already? It doesn't seem possible. For the Wargame Division, the past year was extremely busy. It was also an amazingly productive year because of an unprecedented level of teamwork and cooperation with key Air Force, Joint, and coalition partners.

Sun Tzu once wrote, "During peace, think war." We are certainly not a nation at peace. However, the need to think about future conflicts remains vitally important. This need to focus on future conflicts is the source of the Wargame Division's mission.



# Wargames, Modeling, and Simulation

The mission of the Wargame Division is to develop and execute agile combat support (ACS) objectives in Air Force and Joint exercises, wargames, and experiments (EXWAREX). Thus, the Wargame Division is on the leading edge of logistics transformation as it assists with the examination of evolving ACS concepts and supports doctrine development. In today's ever increasing Joint environment, the AFLMA doesn't do this in isolation. We rely on support from a growing team—major command staffs, Air Force Institute of Technology, Defense Logistics Agency, the Royal Canadian Air Force, sister Services, and contractors.

The events below and articles that follow highlight a few of the Wargame Division's activities and accomplishments during 2008.

### **Senior Decision Making Exercise 2008**

The Senior Decision Making Exercise (SDME) is held at the Army War College located in Carlisle, Pennsylvania. The aim of SDME 2008 was to reinforce

earlier core curriculum learning objectives and allow the student participants to: work effectively in highly complex, ambiguous environments; deal with problems which have not one, but multiple solutions; succeed based on spirit of cooperation and consensus; be involved in Joint, interagency, intergovernmental, multinational, international, and private or nongovernmental organizations and issues; and communicate complex concepts effectively and persuasively, both verbally and in writing. There are 17 scenarios played out on a compressed time line.

### **Global Mobility Wargame 2008**

Air Mobility Command's Global Mobility (GLOMO) 2008 wargame was held 16-20 June 2008 at the Air Mobility Warfare Center, Fort Dix, New Jersey. GLOMO

2008 served as a precursor to the Chief of Staff of the Air Force-sponsored Title X Wargame, Unified Engagement (UE) 2008, and as a venue to address specific logistics and mobility issues that could not be fully explored during UE 08.

### **Unified Engagement 2008**

The UE 2008 capstone event was held 29 Oct – 5 Nov 2008 at the Edelweiss Conference Center, Garmisch-Partnekirchen, Germany. UE is the Chief of Staff of the Air Force’s Title X Wargame that highlights future air, space, and cyberspace warfighting concepts and capabilities in Joint, coalition, and interagency environments. The intent of the event is to execute multiple moves on a compressed time line and explore the future doctrine and force management concepts to validate and drive future applications and requirements.

### **Modeling and Simulation**

The Wargame Division also supported the Air Force initiative to improve the use and



management of modeling and simulation. As a key advisor to AF A4I-led logistics modeling and simulation efforts, we assisted with the development of strategic and implementation plans to guide the integration and application of these tools.

# Future Modeling and Simulation

**Future logistics support of wargames could be greatly enhanced through the development of a suite of integrated modeling and simulation (M&S) tools to support the logistics wargame planners. Using these tools in the preparation and execution of a wargame will enable participants to more effectively evaluate the effects of and countermeasures for enemy actions. This means every effort should be made to provide the clearest picture of logistics capabilities. Identifying and developing appropriate M&S capabilities to support logistics participation should be given greater priority.**

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**Captain Jason Wolff, AFLMA  
Dale Watkins, ICF International**

## Introduction

**D**o you ever wish you had a crystal ball? Just ask it a question and get an instant answer? This would come in real handy when the Air Force Logistics Management Agency (AFLMA) starts the preparations to support the Air Force's Title X Wargames. Unfortunately, we don't have a crystal ball, but with the right logistics modeling and simulation capability we can address the complex challenges warfighters will face during future combat operations. Modeling and simulation (M&S) tools will help us provide insight to the logistics capabilities the Air Force will need to have to support those operations.

An effort to determine logistics modeling and simulation requirements was recently initiated by the Directorate of Transformation (AF A4I). A Logistics M&S integrated product team (IPT) has been formed to establish processes for determining logistics M&S capabilities. The AFLMA, along with Air Force Global Combat Support (AF A4/7Z), have been designated the lead organizations to manage M&S in support of wargames and exercises. The wargames and exercises sub-IPT will seek to integrate Air Force logistics concepts development, operational

logistics decision support, and logistics analysis by identifying and using M&S techniques that emulate the full spectrum of Air Force logistics capabilities into wargame, exercise, and experiment events.

Wargames and experiments (WAREX) M&S will accomplish the following:

- Provide the ability to robustly examine real time, near-, mid-, and long-term logistics impacts on operational concepts
- Improve the logistician's ability to develop and examine logistics concepts needed to support the operational mission
- Provide *ground truth* situational awareness of logistics resources (organic, prepositioned, other Service, coalition, and host nation) available and in the pipeline (time-phased force deployment data, sustainment, and retrograde) needed to support and sustain the mission
- Provide the ability to *what-if* logistics scenarios and identify both positive and negative impacts to mission success

Finally, a comprehensive WAREX M&S program will greatly improve the fidelity of logistics capabilities presented during WAREX events and provide the operational warfighter with an accurate assessment of logistics support capabilities.



An example of this need for a comprehensive logistics M&S suite of tools was experienced by the logistics participants at the Future Capabilities (FG 2007) Game event held during October 2007 at Maxwell Air Force Base, Montgomery, Alabama.

The purpose of the FG 2007 was to assess the capability and capacity of an alternative Air Force force structure utilizing futuristic, yet plausible, concepts to generate the required military effects within and from the air, space, and cyberspace domains in the 2030 time frame.

## FG 2007 Objectives

FG 2007 objectives are as follows:

- **Force Structure.** Gain insights into the employment of an FG force which utilizes emerging technologies and revised operating concepts to provide a campaign winning Air Force which fully exploits the mediums of air, space and cyberspace.
- **Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR).** Examine the capability of a futuristic C4ISR constellation to autonomously find, identify, and track friend and foe, then transfer information to the appropriate decisionmaker.
- **Global and Persistent Precision Strike.** Examine the ability of a future offensive force to generate and assess integrated, timely, precise, lethal, nonlethal, and persistent effects.
- **Global Mobility and Agile Combat Support (ACS).** Examine the ability of a rapid global mobility force to position, sustain, and substantially reinforce distributed air and land forces.
- **Force Protection.** Examine the capability of a force protection concept to defend deployed forces against attack from a wide variety of actors and threats.

For FG 2007, the designed problem statements looked at that capability and capacity the Air Force will require to control and exploit air, space, and cyberspace; generate campaign winning precision effects at range and in time; and what force structure the Air Force will require to remain potent and relevant in the 2030 time frame.

In preparation for FG 2007, the Future Concepts and Transformation Division (AF A8XC) held a series of pregame events to immerse players in the FG 07 scenario and develop red and blue force operational campaign plans. During these events, participants conducted a thorough mission analysis and developed courses of action for both irregular warfare and major combat operations, familiarized themselves with the wargame tool set, and finalized operational plans in preparation for the capstone event.

The logistics participants were significantly challenged throughout the FG 2007 process because of the lack of appropriate M&S tools to enable them to provide substantive quick-turn analyses to support the objectives of the game. The lack of integrated databases specifically populated with the information needed by these participants forced them into a *back of the envelope* mode. This situation was frustrating, knowing one could do a better job of supporting the game but lacking the tools to do so. An effort was made by the participants to identify some of the M&S shortfalls.

The following is a discussion of the types of activities logistics participants are required to perform in support of wargames and exercises.

- **Build Combat Support (CS) Time-Phased Force Deployment Data (TPFDD).** The operational TPFDD is provided to the ACS planner to conduct a CS requirements analysis and identify the unit type codes (UTC) needed to fully support the operational requirement. The standard Air Force force module is the basis for determining the CS deployment requirement. The ability to tailor the force module is limited to the ACS planners' knowledge of specific force module UTC capabilities. Develop a database with rules for identifying specific force module UTC capabilities. Planners need to be able to see type unit characteristics level detail of UTCs and be able to tailor at that level.
- **Air Base and Beddown Feasibility Analysis.** The ACS planners must identify and conduct a beddown feasibility analysis for those forward operating locations (FOL) identified by the operational planner as *preferred* deployment locations. ACS planners must also be prepared to offer multiple alternatives to the operational planner should their choice be unsuitable. Develop a comprehensive airfield database and rules to determine beddown feasibility (need to show a quantifiable impact from force module application).
- **Deconflict and Tailor Combat Support Movement Requirements Among Deployed Units.** Multiple operational units are identified for deployment to FOLs. The ACS planners must determine and identify the units which will deploy force module UTCs. Rules which automatically identify the lead unit's CS deployment requirements are developed.
- **Fuel Sourcing and Consumption.** ACS planners are responsible for identifying on-base fuels receipt, storage, and dispensing capabilities and availability of fuels throughout the theater. Develop an updateable database to link on-base fuels requirements with theater fuels resources. Establish capability to forecast consumption based on operational need and identify the resupply source and the rate of resupply.
- **Munitions Sourcing and Consumption.** ACS planners are responsible for establishing the worldwide inventory and the initial distribution of munitions assets during pregame planning. Planners are responsible for tracking munitions consumption and establishing sustainment for each operating location during game execution. Develop an updateable database to link on-base munitions stocks with worldwide munitions inventories. Establish capability to forecast consumption based on operational need and identify the specific sustainment source. The sustainment requirement should be output as a transportation requirement for movement to the FOL.
- **Follow-On Sustainment.** ACS planners should be able to identify and forecast continuous sustainment requirements by class of supply. This is not currently done with any granularity (planners estimate sustainment as a daily gross movement requirement with no regard for what commodities are being moved). Develop a capability to identify the percentage of total movement for each class of supply (for example, Class I is 30 percent, Class VI is 60 percent, and so forth). The problem, however, is determining how much lift is required.
- **Rapid Intertheater and Intratheater Airlift Allocation.** During game execution, the movement of non-Air Force cargo and passengers is identified through move sheets to the ACS planners. Most of this is Army combat resources that need to be moved forward from an aerial port of debarkation or sea port of debarkation. Logistics participants need to be able to

read the TPFDD and provide a quantified forecast to the ACS planners to determine the impact on theater movement capabilities.

- **Provide Players with Reports (graphical).** In general, the senior leadership at wargames prefers graphical reports such as stoplight charts, pie charts, and other graphs. The problem is that the planners must attempt to build these reports by hand and from scratch for every game. Most commonly asked-for reports are fuels, munitions, status, visibility of deployed assets in theater, impact of aircraft attrition, and status of air base post attack.

The logistics community will continue to support wargaming events. These events provide an opportunity to *look into the future* at the needs of the operational community and identify possible shortfalls in logistics capabilities to support those future operations. The ability to quantify ACS impacts must be embedded in the software and game tools. Quantitative depiction of tonnage, manpower and force or data protection, fuel consumption, fuel storage capacity, distribution, key equipment tracking, munitions, and munitions expenditures must be

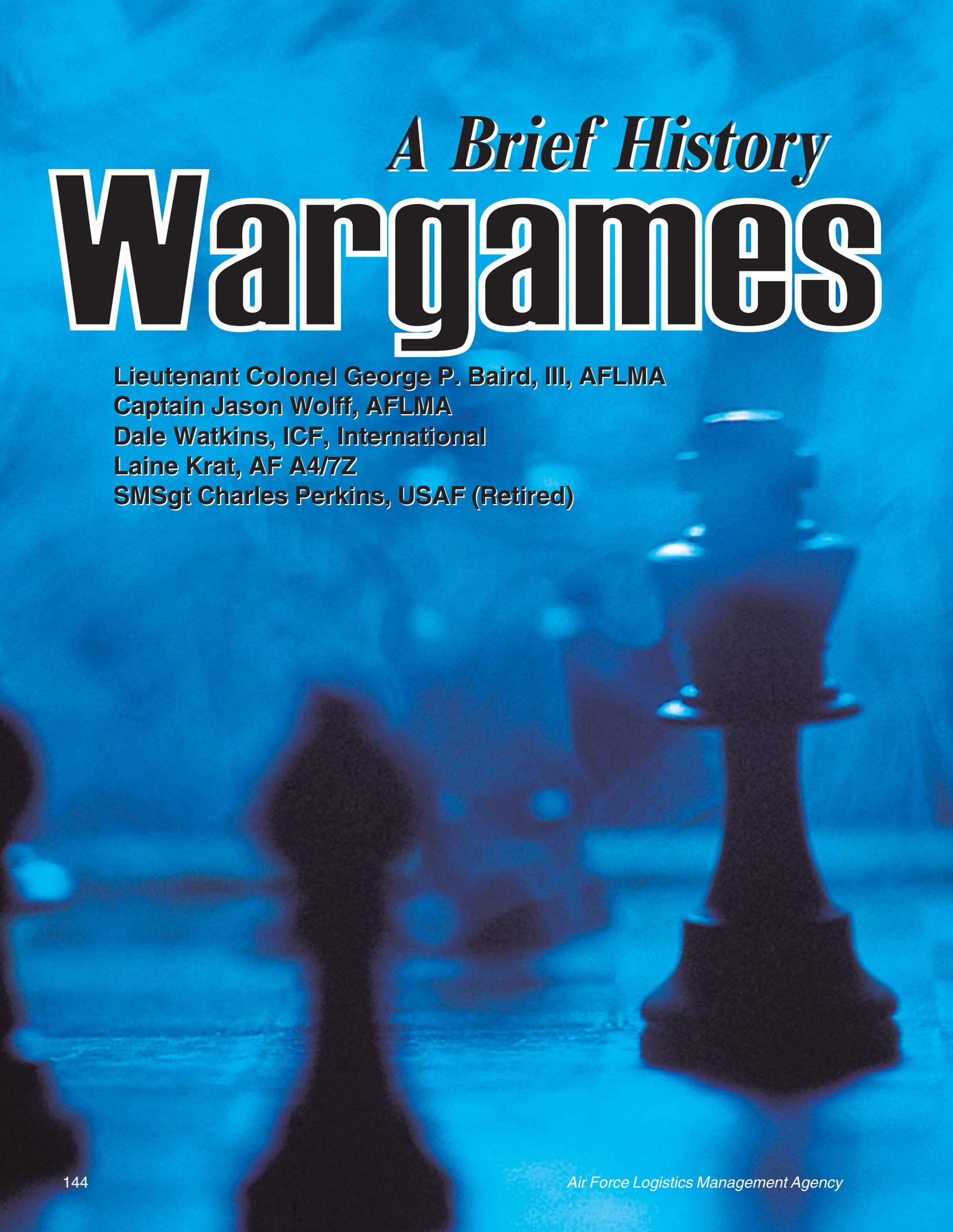
automated. The results of game play events such as attacks on fuel distribution systems or loss of a cargo aircraft must be examined thoroughly to determine their effects and identify the countermeasures required to avert or mitigate such attacks.

Future logistics support of wargames could be greatly enhanced through the development of a suite of integrated M&S tools to support the logistics wargame planners. Using these tools in the preparation and execution of a wargame will enable participants to more effectively evaluate the effects of and countermeasures for enemy actions. This means every effort should be made to provide the clearest picture of logistics capabilities. Identifying and developing appropriate M&S capabilities to support logistics participation should be given greater priority.

A good analogy is that the Air Force is like an attack dog. The bombs, missiles, and guns are the teeth and that is what destroys or deters our enemies. Logistics is the care and feeding of the dog and you don't get the bite you need without the *whole dog*. Logistics brings the whole dog to the fight, not just the teeth.

generating transformational solutions today;  
focusing the logistics enterprise of the future

**AFLMA**  
Air Force Logistics Management Agency  
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*A Brief History*  
**Wargames**

**Lieutenant Colonel George P. Baird, III, AFLMA**

**Captain Jason Wolff, AFLMA**

**Dale Watkins, ICF, International**

**Laine Krat, AF A4/7Z**

**SMSgt Charles Perkins, USAF (Retired)**



**US military leaders realized they needed mechanisms that would look ahead 10, 15, 20, and 25 years. This mechanism would provide assurance that the United States would remain a dominant power. Wargames were developed to provide insight and pave the way for development of technologies and strategies that would effectively shape the future and protect against the unseen.**

**“So, you are going to work for the Air Force Logistics Management Agency,” my friend exclaimed. “Yes,” I replied. “What will be your job?” “I will be assigned to the Wargaming Division...” My voice trailed off as my mind hastened into its recesses at the *speed of thought*, halting in a maze of bushes, freshly mowed grass, chain-link fences, buildings and trees. Though my senses were finely tuned and adrenaline high, the terror mushroomed as the enemy rounded the corner of a building. The rat-a-tat-tats seemed endless as weapons blazed into action. But, just as spontaneously as the skirmish had begun, it ended. The conversation, now in the past, erupted more violently than the sound of weapons as the combatants, who now hoarsened by the vocal simulation of gun fire and exploding grenades, lashed out at each other. “I killed you.” “No, you didn’t, I fired first.” “No way, I shot you and threw a grenade; it exploded at your feet.” This imagined and brief fire-fight had lasted 15 seconds. The argument over who won the skirmish lasted 15 minutes and carried over into the next few days. As similar, daily encounters continued to produce the same results, my fellow childhood combatants and I decided we needed a plan. So in**

brief meetings prior to each engagement, we decided who would die and live, who would be wounded, whose territory would be captured, how many rat-a-tat-tats each player would have, and so forth. Plans evolved into quite elaborate scenarios as our equipment became more elaborate and our *combat experience* and *combat knowledge* increased in scope and complexity. Our knowledge was fueled by the new television series, *Combat* starring Vic Morrow as Army Sergeant Chip Sanders. Birthdays, Christmases, and Army/Navy surplus stores were our supply chain to new and more lethal weapon systems. We didn't know it, but we were wargaming. The scope of our scenarios was only limited by our imagination.

Albert Einstein is quoted as saying, "The true sign of intelligence is not knowledge but imagination." In the commonality of all human experience, childhood fantasy is replaced by the harsh reality of the *adolescent reformation* and bona fide current events. Our childhood wargames lasted through several television seasons of *Combat*. A few years later the reality of war greeted two or three of my fellow childhood combatants as they slogged through the jungles and rice paddies of Vietnam. Our wargames did nothing to prepare my friends for Vietnam. In our games we dealt with a well defined enemy (the German military) in a very narrow scope of time, space, and experience. Today we no longer deal with superpowers whose intentions are well known and their strategies and tactics defined and charted. We are facing threats from all quarters where individuals, organizations, cultures, and rogue nations no longer resemble the well defined threats of nation against nation. The once unambiguous boundaries of conflict are blurred along the lines of religion, culture, race, and ideology fueled by an obsession to dominate the control of wealth and power through the employment of high-technology weaponry in a proliferating world of asymmetric warfare where human life is secondary, tertiary, or matters not at all. This newly emergent warfare is only limited to a deviant imagination for which, if history serves us right, is in reality unrestrained and unconstrained. There is neither boundary nor morality to govern the aggressor. With the idea that no holds are barred, let's look at wargaming, its past, its present, and its future.

Wargaming's historical past is ill-defined, with the best documented history beginning in the recent past almost within arm's reach of the baby-boomer generation and certainly within reach of their grandparents—that of the 20<sup>th</sup> century. But what support is there for the human endeavor of wargaming that predates written history? Put on your imagination cap and walk back in history to the time when humans lived in the caves of present day Spain and mammoths roamed the earth. Or wander back to the third century BCE into the Qin dynasty of present day China. Finally, just take a walk outside and sit as if you were in front of a roaring camp fire and listen to the elder warriors of a Kiowa tribe describe the combat exploits against US Cavalry soldiers or the Shoshoni expound on Chief Wahakie's history of combat. In a day when the implements of combat or hunting changed very little and tactics were long lived, these examples of wargaming, whether pre-war or post-hunt, conveyed to the next generation the techniques of warfare and survival. The concepts of tactical, operational, and strategic planning are represented in one of each of these two examples. The Kiowa drawing on the animal skin of a tipi or the Shoshoni drawing on animal skin can be thought of as a series of tactical battles within

the operational frame of war conducted against US Cavalry forces (see Figures 1 and 2). Finally, the *Terra-Cotta Soldiers* (see Figure 3) of the Qin dynasty is one of the finest examples of the *Strategic Plan* in that the soldiers of clay were to aid the Emperor in his rule after his death. How much more forward thinking can you get! Each example draws on one's own past experience, implements tactics and methods of the present day, and predicts the outcome of warlike events of the future.

How much of wargaming should be devoted to past experience, to present day technologies and ideologies and to futuristic predictions about the nature of war and the minds of the combatants? How should the past and the future shape our concepts, technologies, tactics and strategies? What should be discarded or ignored? What should be retained and enhanced? What should be developed and tested? National strategic planners make those decisions, but operators test and validate those decisions. Wargaming is the tool that enables the operator

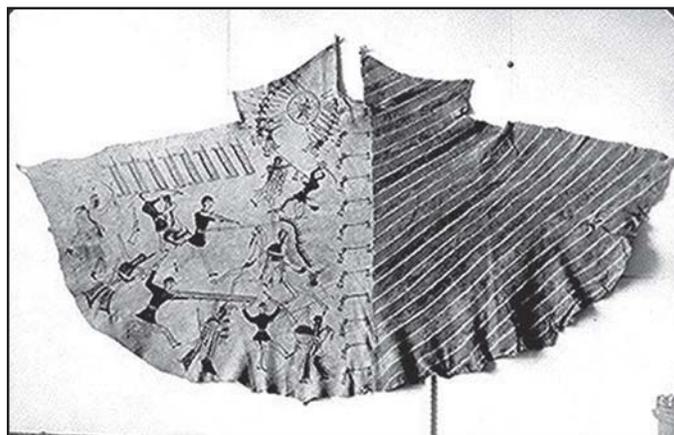
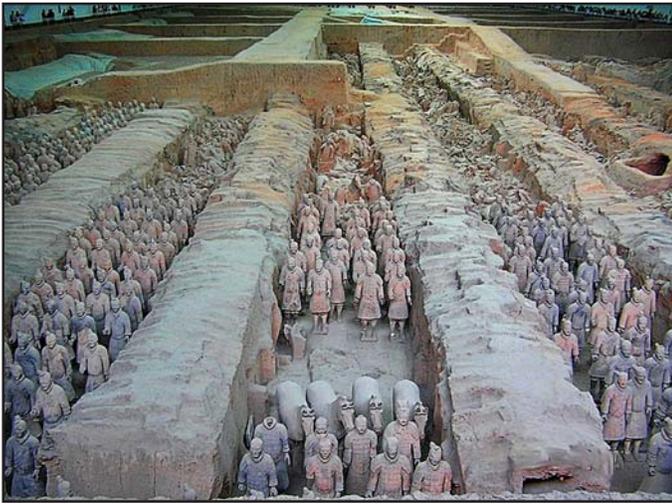


Figure 1. Tipi Depicting Battles Between Kiowas and US Soldiers



Figure 2. Animal Skin With Pictorial History of Shoshoni Chief Wahakie's Combats.



**Figure 3. Platoons Of Clay Soldiers Buried With Qin Shi Huang Di to Accompany Him During His Eternal Rest (Permission to use photo graciously provided by Tsilla and Yoram Nahari)**

at whatever the level of conflict to evaluate man and his machines across the spectrum of weapon systems and warfare whether the system is economic, political, psychological, kinetic, or a combination of all.

The 19<sup>th</sup> century was ushered in by and suffered through a number of wars, conflicts, and skirmishes with the most notable for the United States being the Napoleonic Wars, the War of 1812, the Indian Wars, the American Civil War and the Spanish American War. Also during that period, a wargame aptly named *Kriegsspiel* (German for wargame), akin to the game of Chess, gained popularity and was used extensively by the Prussian military and later by British and Americans to educate their officers in the techniques of the *mind set* of war. The game is still played today by enthusiasts. In the game neither side can see the position of the chess-like pieces of the opponents. The game, officiated by an umpire who can see both opposing forces and their positions, disallows illegal moves and removes the pieces from the board when legal moves are made. The inability of each side to see the opposing forces increases *the Fog of War*, a description of war for which Carl Phillip Gottfried von Clausewitz became famous in the concepts he espoused in *On War*.

The later 19<sup>th</sup> and early 20<sup>th</sup> centuries swept aside methods of warfare virtually unchanged for eons as advances in mechanization, precision, and manufacturing increased exponentially, escalating the lethality and effectiveness of weapons and weapons systems. Knowing this, in the 1920s, the US Navy conducted a lengthy series of wargames dubbed the *Rainbow Wargame Series* in which they developed and experimented with scenarios directed at a possible future war with Japan, emphasizing naval battles fought on the Pacific Ocean. This series of wargames was the father to the wargames we conduct today. Admiral Chester W. Nimitz said of the Rainbow Games; “The war with Japan has been reenacted in the game rooms at the War College by so many people, and in so many different ways, that nothing that happened during the war was a surprise—absolutely nothing except the Kamikaze tactics towards the end of the war—we had not visualized these.”

The Revolution in Military Affairs, coupled with the Industrial Revolution, began in earnest during the 16<sup>th</sup> century

and continued through the 19<sup>th</sup> century. Innovations such as rifles, steam-power, railway, armored naval vessels, machine guns, internal combustion engines, and submarines were developed. These new technologies drastically changed the character of warfare—and yet tactics and strategies remained essentially unchanged. But as the 20<sup>th</sup> century dawned, two realms were unleashed that have revolutionized warfare more in the last 100 years, and especially in the last 20 years than all other technologies and advancements from millennia of the past. Warfare took a quantum leap into the vertical third dimension as airpower was harnessed, developed, and perfected. However, a second advancement dawned with the potential to dwarf airpower. The power of the electron was unleashed. World War II was won by the Allies as their electronic technology was developed and fielded quicker and proved more effective than that of the Axis powers. Most notable of these advances were superior precision bombing, navigation systems, radar, and nuclear power. The Korean War saw little change in the application of technology, but the value of precision guided munitions was proven during the Vietnam War.

Two other events during the same period produced a quantum leap in the development of technology—the Cold War and the Race for Space. From these two events, information technology was born. The new race has been to control the ever accelerating development and proliferation of electronic and information technology in cyberspace. Nations as well as non-nation combatants are attempting to adapt, utilize, and control this new dimension of weapon systems on the cyber battlefield with an unequalled, unprecedented speed, stealth, and capability across the spectrum of cyber operations. While bullets and bombs are the tip of the spear, the speed, accuracy, and stealth with which these weapons can be delivered is unimaginable when coupled with cyber technology. The revolution in military affairs is increasing at such an exponential rate that this era of warfare could very well be characterized as an *e-revolution* in military affairs.

Because of this evolution in the late 1980s, and the rapidly changing information and knowledge, US military leaders realized they needed mechanisms that would look ahead 10, 15, 20, and 25 years. This mechanism would provide assurance that the United States would remain a dominant power. Wargames were developed to provide insight and pave the way for development of technologies and strategies that would effectively shape the future and protect against the unseen. Title X of the 1995 *Defense Appropriation Act* directed the Department of Defense to develop and conduct wargames. In response, each Service has developed a series of wargames that incorporate jointness and multiple nations in alliances and coalitions with shared *command, control, communication, computers, intelligence, surveillance and reconnaissance* (C4ISR). These games can be played as manual games, in a seminar environment or with the use of computers. They look into the future and analyze technologies, weapon systems, and political environments. AFLMA has been designated as the subject matter expert for the incorporation of logistic scenarios, models, and simulations into these games. In a global mobility environment where the gamut of warfare can be waged simultaneously, logistics has never been more important.

As we move into an exponentially evolving, information-centric environment, futurists and planners must adapt warfare and the supporting logistics to meet and defeat the challenges

ahead. Information technology and its wide array of adaptations and developments are no longer exclusive tools of the superpowers but are available to all individuals and nations, and their use is only limited by the imagination of the mind. In the last 20 years computers have evolved from memories measured in kilobytes and kilohertz to practically unlimited storage and processing power measured by terabytes and megahertz. With the access to the vast store of information and real time C4ISR, the futuristic strategist of the 21<sup>st</sup> century will have to harness the advancing computer capability and programming using models and simulation and possibly artificial intelligence. Models and simulations will not only define weapon systems and the inherent capabilities but will also have to replicate political, national, societal, cultural, egocentric, and religious views.

“Professional soldiers are predictable, but the world is full of amateurs.” This quote from newspaper columnist David Evans in an article entitled “Murphy Also Has Some Laws for Combat” reveals the most difficult aspect of warfare—the human mind. In the Information Age, the imagination of a few may very well rule the world. We must understand the mindset of our adversaries and accurately define where their imagination might attack our *centers of gravity*. Wargames must address these mindsets at the speed of thought. The future is not 25 years ahead of us. Our future may lie on our doorstep in the morning. Wargaming is the test of our minds and imaginations and those of our adversaries.

---

*Deterrence is not just aircraft on alert and missiles in the silos. It is not defined by the size of the defense budget. It is a product of both capability and credibility.*

—Gen Jerome F. O’Malley, USAF

*Successful operations depend on the entire wing organization working as a team with but one purpose in mind. The purpose, of course, is to make certain of the destruction of the selected target at exactly the right time and place. All of the years of planning and training, and the great financial and personal costs and sacrifice, will be vindicated by the successful execution of the mission; likewise, all will be wasted by failure, regardless of its cause.*

—Air Force Manual 51-44, 1953

*Forces that cannot win will not deter.*

—Gen Nathan F. Twining, USAF

*If you concentrate exclusively on victory, with no thought for the after effect, you may be too exhausted to profit by the peace, while it is almost certain that the peace will be a bad one, containing the germs of another war.*

—B. H. Liddell Hart

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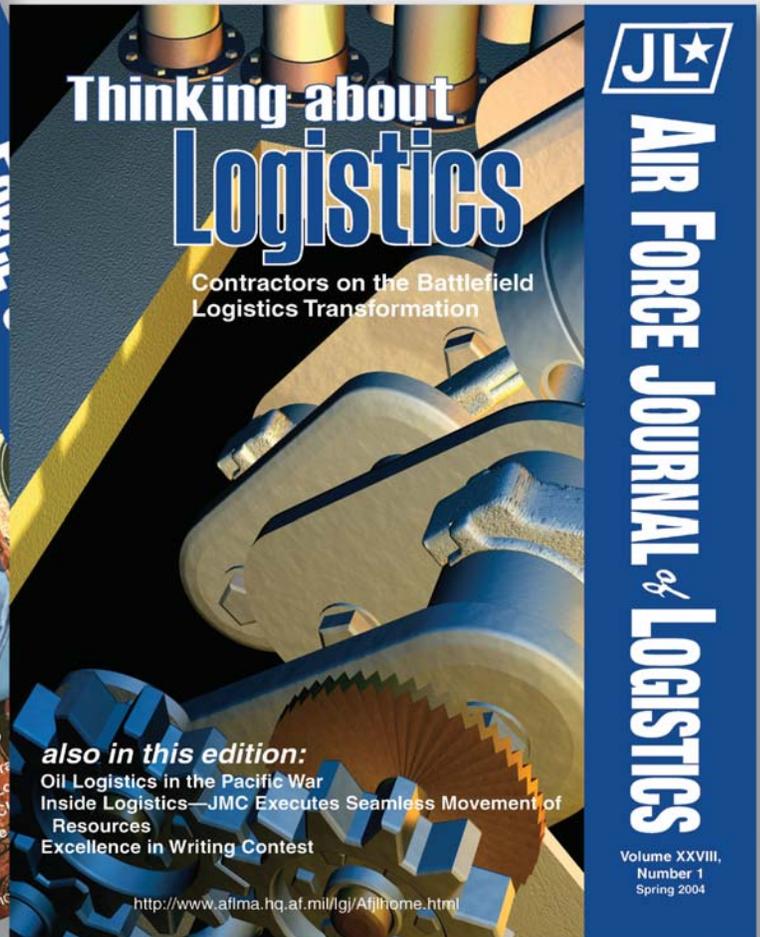
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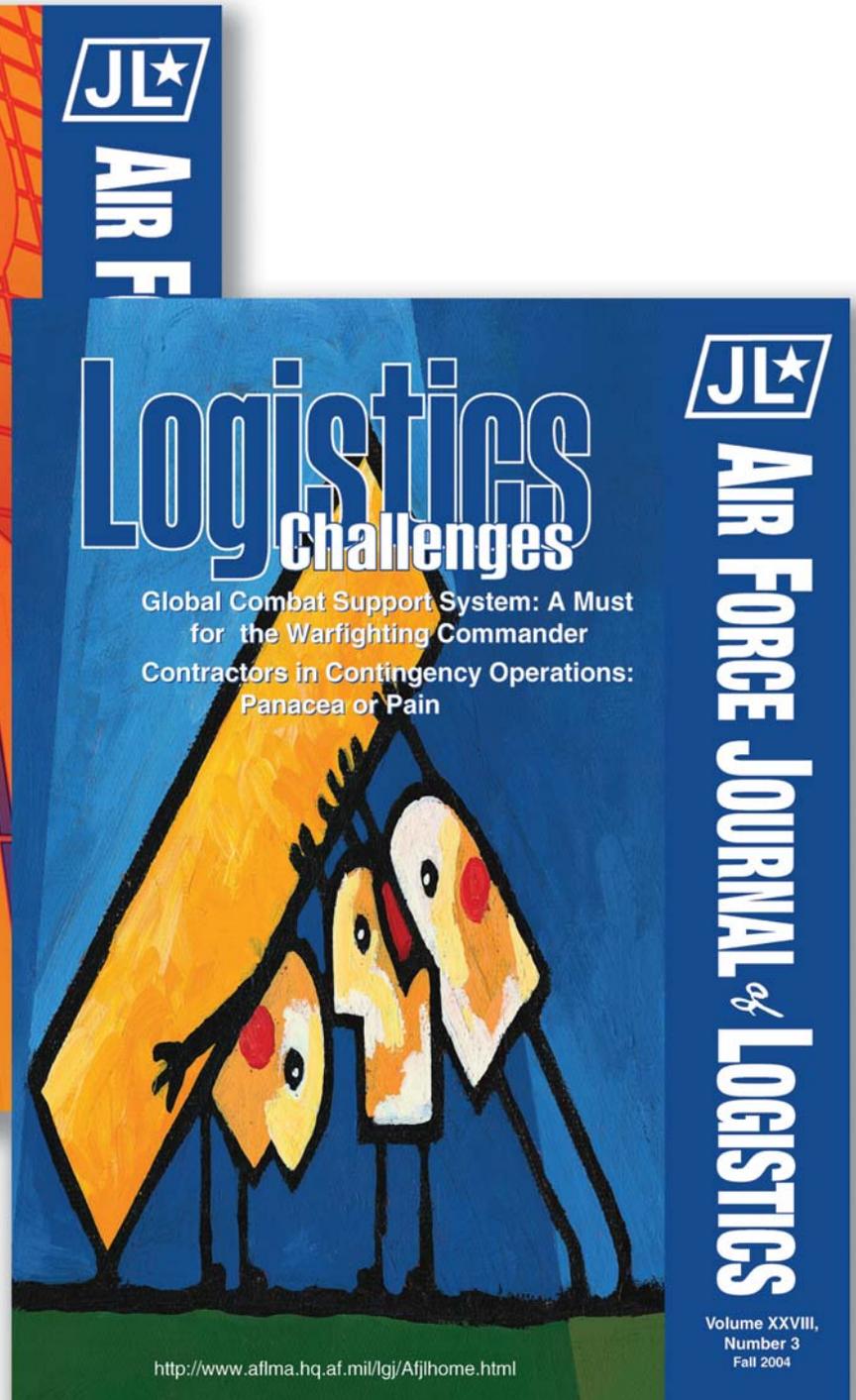
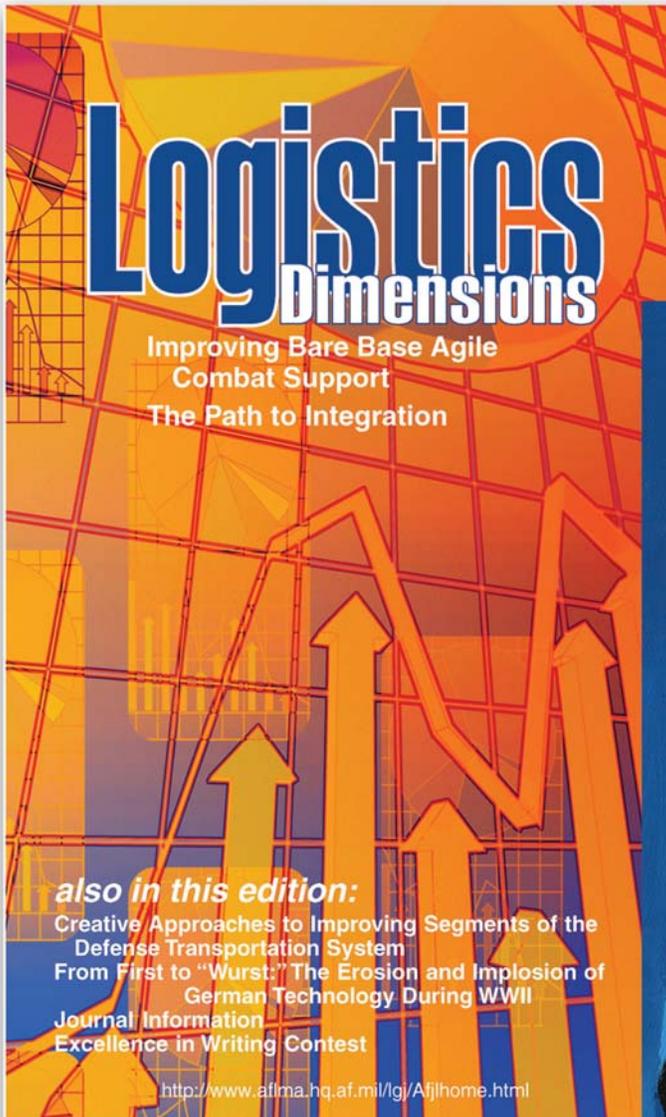
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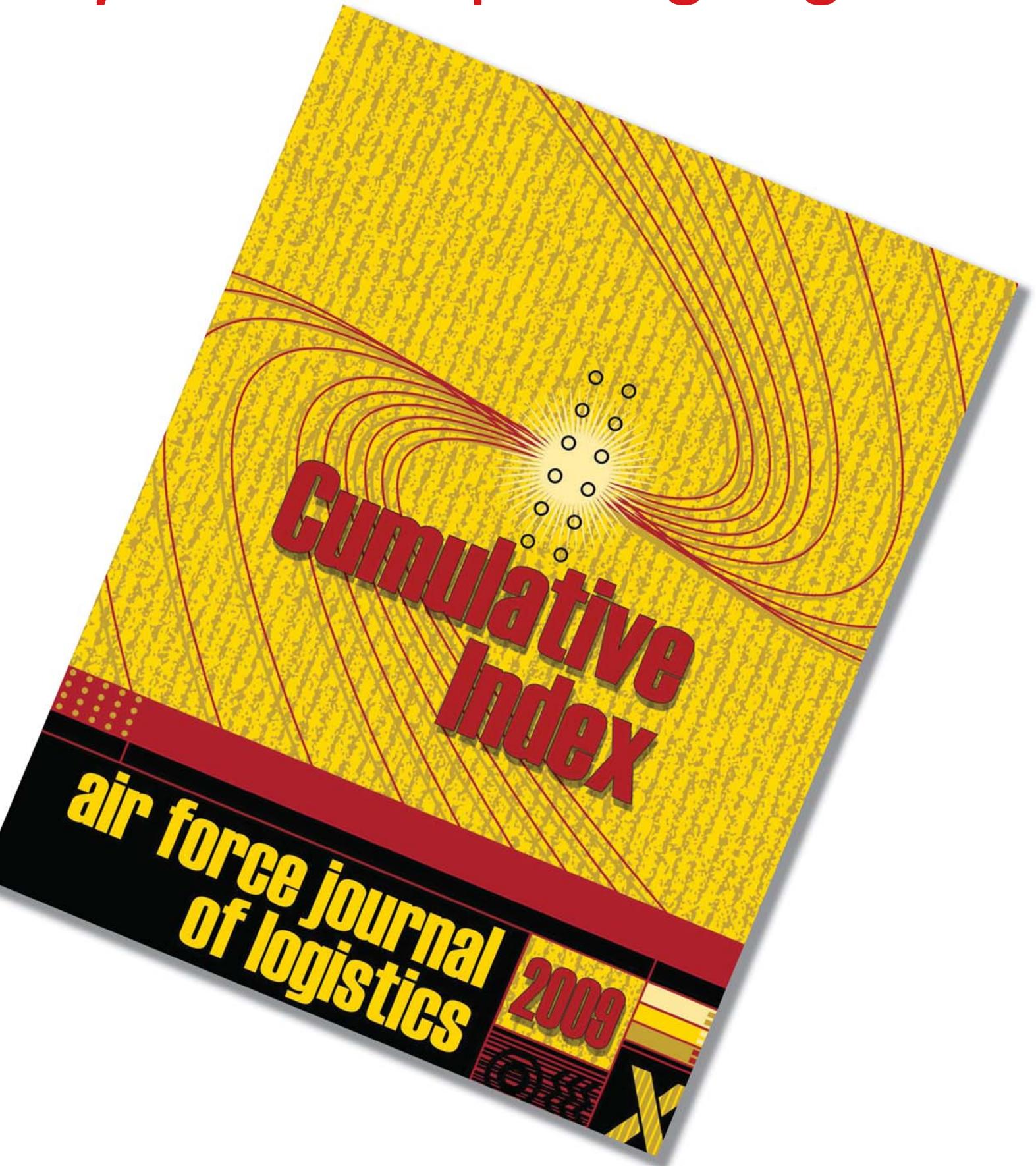
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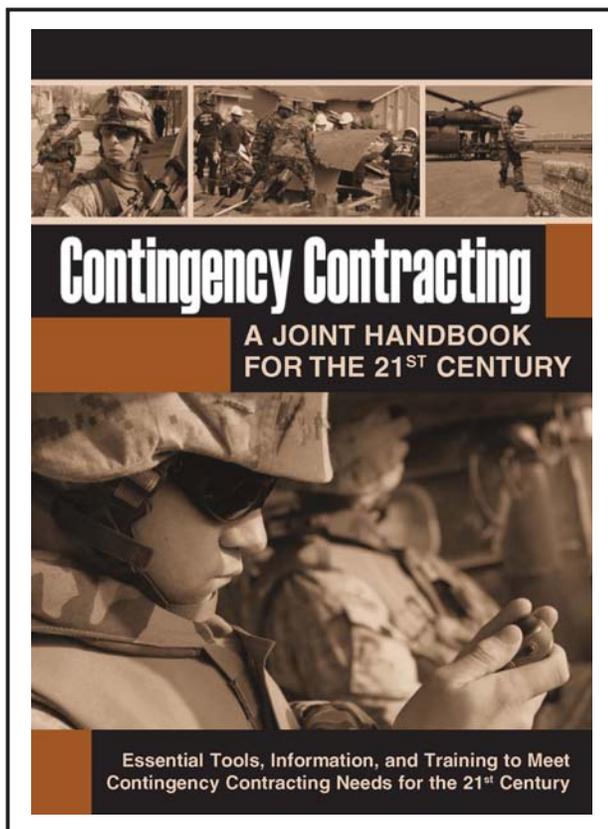
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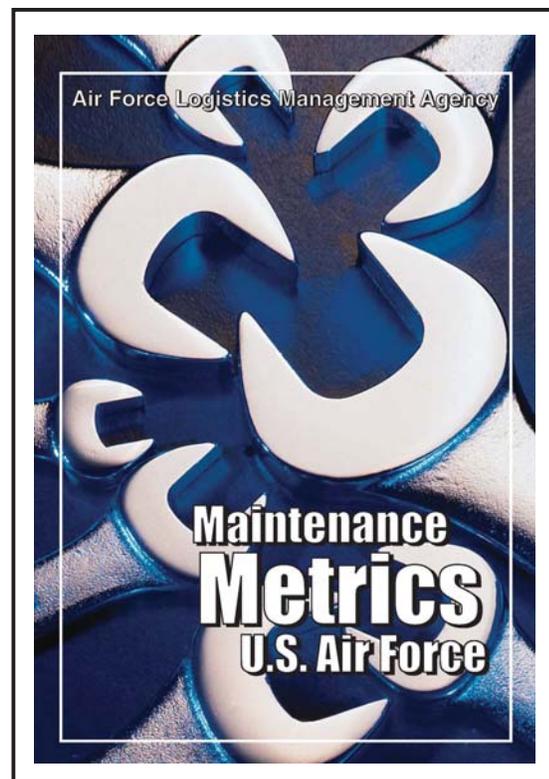


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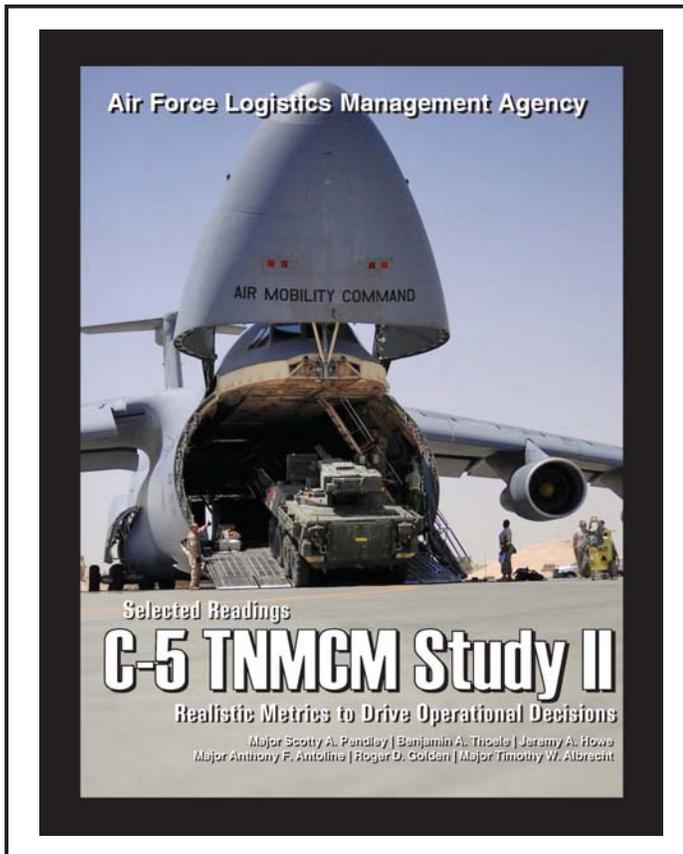
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This handbook is an encyclopedia of metrics and includes an overview to metrics, a brief description of things to consider when analyzing fleet statistics, an explanation of data that can be used to perform analysis, a detailed description of each metric, a formula to calculate the metric, and an explanation of the metric's importance and relationship to other metrics. The handbook also identifies which metrics are leading indicators (predictive) and which are lagging indicators (historical). It is also a guide for data investigation.



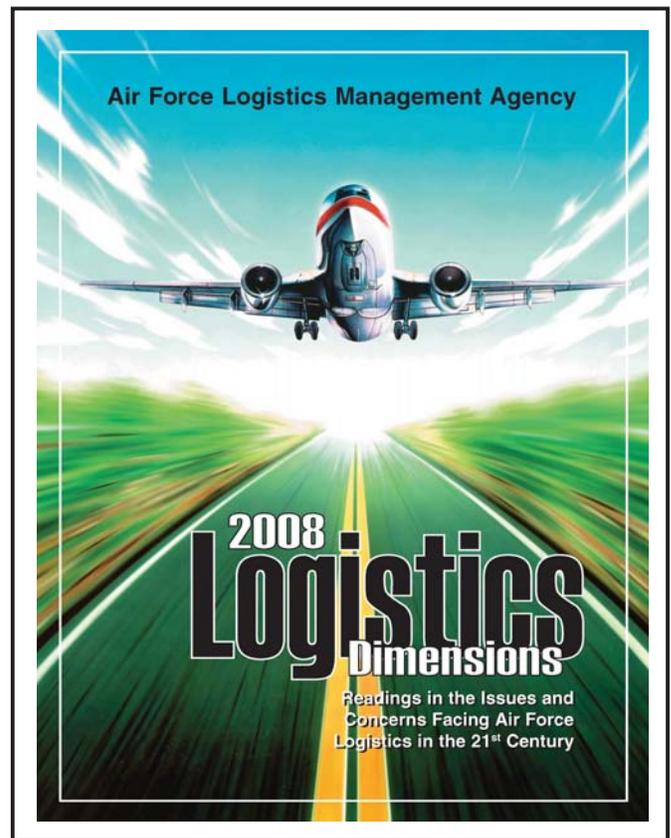
## *C-5 TNMCM study II*

The *C-5 TNMCM Study II* proved to be a stern test of AFLMA's abilities and perseverance. The research addressed areas of concern including maintaining a historically challenged aircraft, fleet restructuring, shrinking resources, and the need for accurate and useful metrics to drive desired enterprise results. The study team applied fresh perspectives, ideas and transformational thinking. They developed a new detailed methodology to attack similar research problems, formulated a new personnel capacity equation that goes beyond the traditional authorized versus assigned method, and analyzed the overall process of setting maintenance metric standards. A series of articles was produced that describes various portions of the research and accompanying results. Those articles are consolidated in this book.



## *logistics dimensions 2008*

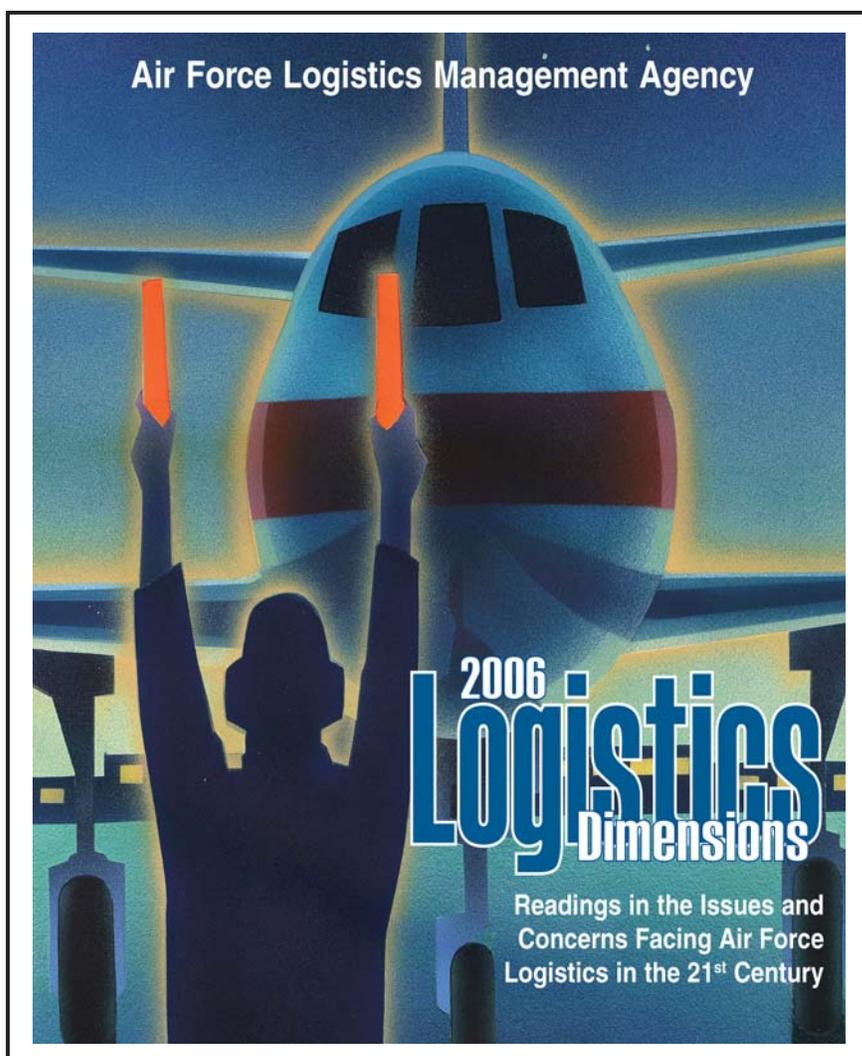
*Logistics Dimensions 2008* is a collection of 19 essays, articles, and vignettes that lets the reader look broadly at a variety of logistics concepts, ideas, and subjects. Included in the volume is the work of many authors with diverse interests and approaches. The content was selected for two basic reasons—to represent the diversity of the ideas and to stimulate thinking. That's what we hope you do as you read the material—think about the dimensions of logistics.



Have you noticed there seems to be a void when it comes to books or monographs that address current Air Force logistics thought, lessons from history, doctrine, and concerns? We did, and we're filling that void. Our staff produces and publishes selections of essays or articles—in monograph format—on a quarterly basis. Each has a theme that's particularly relevant to today's Air Force logistics. Informative, insightful, and in many cases, entertaining, they provide the Air Force logistics community the kind of information long taken for granted in other parts of the Air Force.

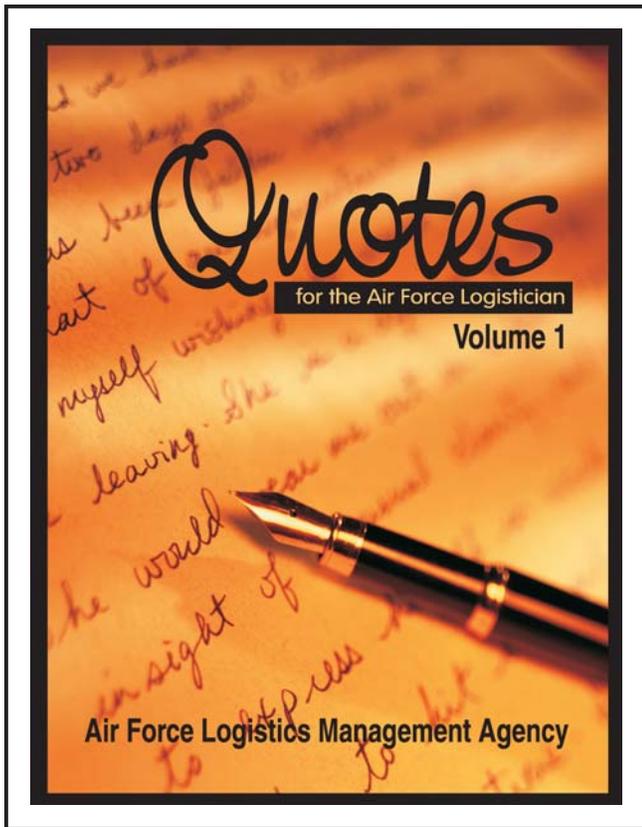
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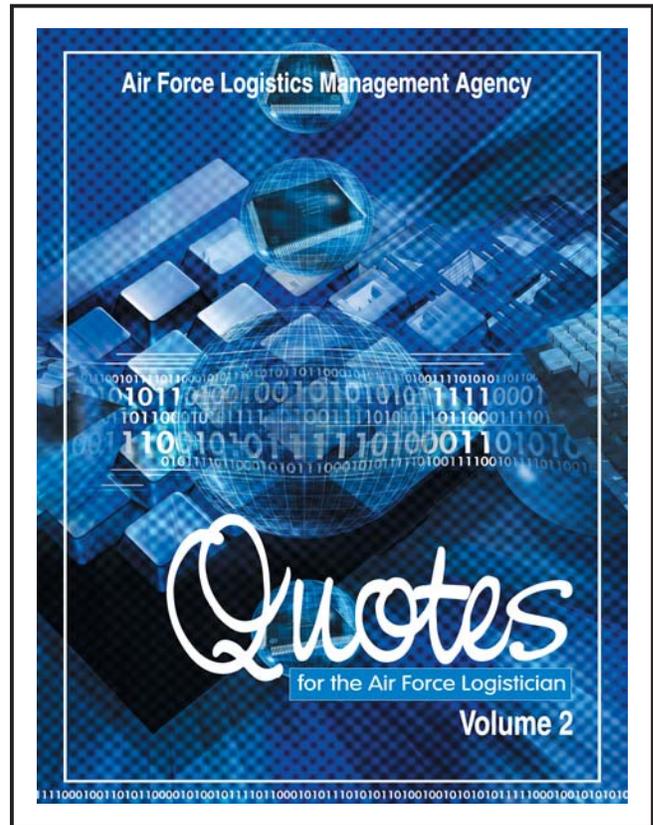


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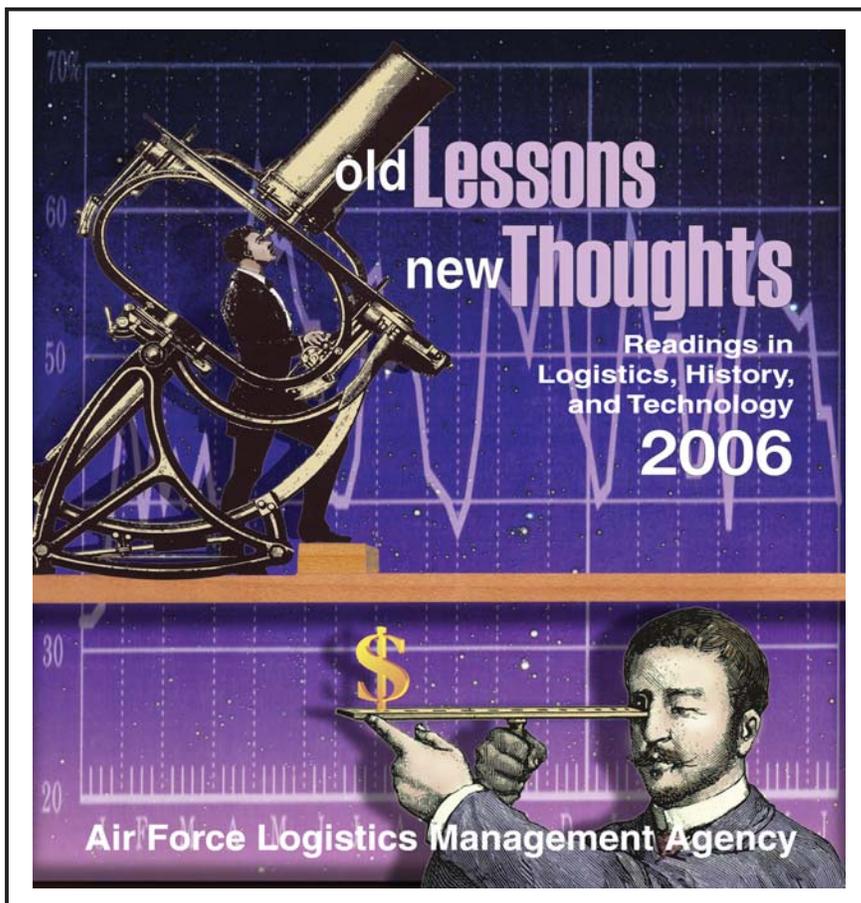
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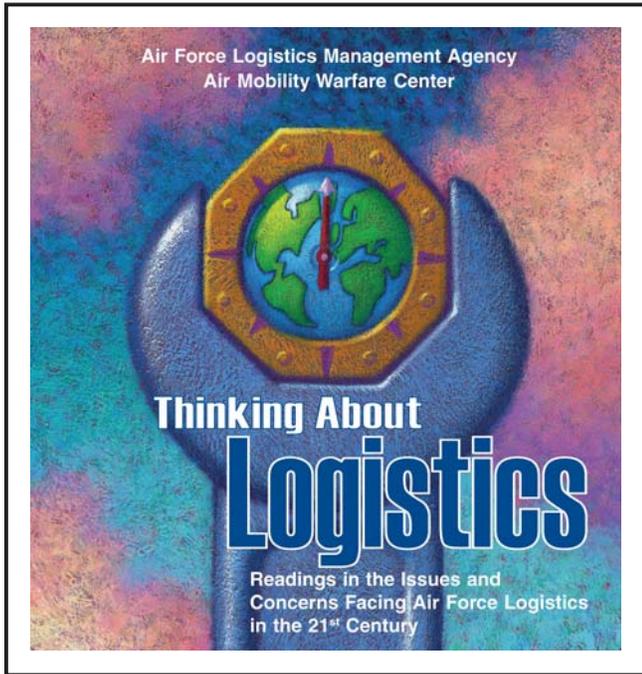
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Each of our newest works is produced in a high-impact format that makes you *want* to pick it up and read it. If you're used to seeing or thinking of works dealing with logistics as colorless and dry, you'll be more than surprised with these products. They continue the tradition of high-quality publications produced by the Air Force Logistics Management Agency and staff of the Air Force Journal of Logistics.



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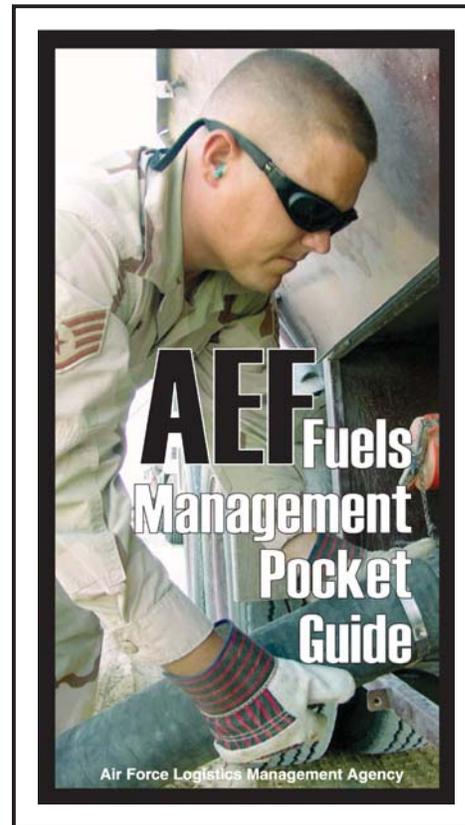


### *thinking about logistics*

Thinking About Logistics is a collection of papers written by students taking the Advanced Logistics Readiness Officer Course at the Air Mobility Warfare Center, Fort Dix, New Jersey. The focus of the work is on issues facing Air Force logistics in the 21<sup>st</sup> century, particularly supporting expeditionary airpower.

### *aef fuels management pocket guide*

The *AEF Fuels Management Pocket Guide* is designed to assist in understanding fuels issues as they relate to expeditionary airpower operations. The information is intended to provide a broad overview of many issues and be useful to anyone who has an interest in the Air Force fuels business.



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Thomas Gage, PhD, AFLMA

# Analysis Connection

*Man masters nature not by force but by understanding. That is why science has succeeded where magic failed: because it has looked for no spell to cast on nature.*

— Jacob Bronowski, “The Creative Mind,” Science and Human Values, 1956

**I**n 2008, Major Jennifer Walston became LGY’s *rock star*, being asked for command performances by the Air Force Chief of Staff and the Secretary of the Air Force (and many very important persons) for her work on the Comprehensive Analysis of Nuclear Surety



(CANS) study, which got her invited back a few months later to help with CANS Number 2. LGY continues to be involved with assisting the Air Force in regaining our footing in the nuclear arena. She published “Mesh Adaptive Algorithms for Mixed Variable Optimization,” to appear in *Optimization Letters*, as well as “Capturing Risk in Solution Prioritization,” in *Air Force Journal of Logistics*, Volume XXXII, Number 3, Fall 2008. Major Walston was handpicked for the control team for Austere Challenge 2008, a Joint Chiefs of Staff-sponsored major Joint exercise, and provided vital expertise for United States European Command support for a President of the United States African health partnership visit to five nations. All in all, 2008 was a busy year for Major Walston.

Gale Bowman was also involved in the nuclear area, working 26 straight days of long, long hours in the Air Force Logistics Management Agency’s (AFLMA) secure room to provide an integrated complete inventory of all Air Force-owned nuclear weapons related material, directed by the Secretary of Defense. Over 17,000 records were assembled, checked, and rechecked—and then checked again, for which work she was *coined* by Headquarters Air Force Directorate of Logistics (AF A4). Ms Bowman’s tireless professional work ensured the integrity of the Air Force process, and will continue to do so in the future. Ms Bowman coauthored and submitted two articles which were subsequently published in the *Air Force Journal of Logistics*, a peer-reviewed publication. As well, Ms Bowman has acted as primary AFLMA Unit Security Manager for most of this year. The military member who was primary was either deployed or on temporary duty. She has performed this duty above and beyond what was required or expected, and was named official unit security manager.

John Dietz continues to provide support for running the Readiness-Based Leveling model, which is used to examine the allocation of Air Force-managed spare parts authorizations worldwide, every 6 months, as well as examining on an as-needed basis each contingency high-priority mission support kit. These computer runs are tedious, time-consuming and exacting, and Mr Dietz does this job admirably. Mr Dietz has also provided analytical support to several meetings of the Air Force Supply Chain Management Board. The clarity of his logic and accuracy convinced the board to approve changes in policy which will yield a 10 percent reduction in outages for critical items. In addition, Mr Dietz has independently led the AFLMA safety program to a very high level, and has received plaudits from our wing safety inspector. Mr Dietz manages the testing of all upgrades to the readiness-based levels application, which also happen every 6 months. There are always significant changes which need to be vetted, which he does with great attention to detail and veracity, and meets all of the deadlines. On his own initiative, Mr Dietz created and maintains a database of weight and cube information which can be and has been used for studies not only at the AFLMA but at other agencies.

First Lieutenant Frank Iubelt was indeed busy this year as our building manager, equipment custodian, and equipment manager (which is nearly a full-time job by itself). He rewrote the Maintenance Metrics Handbook, which will be showing up in changes to Air Force Instruction 21-101. Lieutenant Iubelt also participated in the Air Force Chief of Staff’s Unified Engagement 2008 wargame, being *coined* in appreciation by the Coalition

Joint Task Force Command, Control, Communications, and Computer Systems (C4S) for his excellent contributions to the process. Lieutenant Iubelt developed a Mobility Air Force-wide demand and capacity metric which led to a 10 percent decrease in total not mission capable maintenance rate at Dover Air Force Base. As well, Lieutenant Iubelt has been instrumental in developing a way to integrate maintenance and experience skill levels into assessing maintenance capability. For the first time, maintainers can tell warfighters their true sustained sortie capability.

Captain John Flory spent a good part of 2008 in the sand at the Combined Air Operations Center, learning and being learned from. He has written an article about his *summer vacation* which will also appear in this edition of the *Air Force Journal of Logistics*. He led an Operation Iraqi Freedom airlift mission planning efficiency optimization, which increased the flight sortie rate an amazing 25 percent. He was the sole authenticator for over 20,000 Allied Forces Central Europe sorties, reconciled 3 differing mobility systems, increasing data accuracy by 40 percent. He evaluated the ramifications of a Pakistan air corridor closure, and identified a crucial Operation Iraqi Freedom/Operation Enduring Freedom impact, to avert a classified problem. Back at the ranch, Captain Flory continues to perform exceptional work on all projects he is assigned to. Captain Flory has elected to leave the Air Force this year and seek fame and glory by pursuing a PhD in statistics in Pittsburgh, Pennsylvania. We wish him all the best.

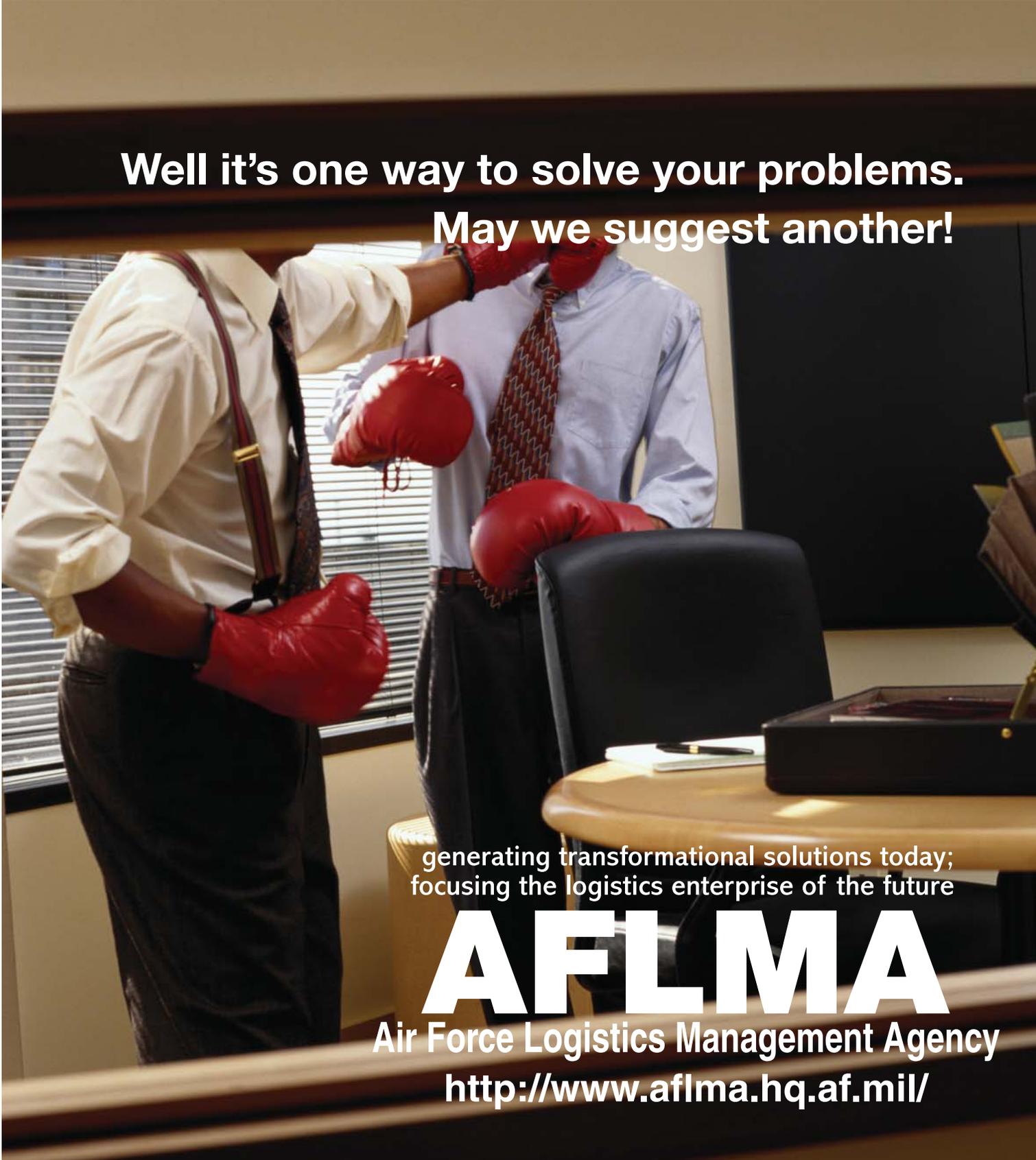
After leading the effort in several important projects, Captain Jenine Cowdrey left the Air Force early in 2008, having decided that she could help us all see the world a little more clearly by becoming an optometrist. While she was still with us, she led a project to determine the impact of labor unionization on A-76 contracts, and briefed 100-plus of her peers at a contracting symposium. She was involved with several volunteer projects while at the AFLMA, and served as our unit deployment manager for an extended period; our members were trained and equipped with no discrepancies. Due to her efforts, AFLMA earned an *outstanding* in a staff assistance visit.

Late in 2008, Ms Jennifer Lizzol came to work at the AFLMA from the Headquarters Air Force Operational Test and Evaluation Center (AFOTEC). Ms Lizzol’s husband, Captain Lizzol, is currently serving as an instructor at Squadron Officer School. Ms Lizzol came very highly recommended from AFOTEC. AFLMA is fortunate to find Ms Lizzol as an experienced analyst and statistician. She has been immediately put to work on figuring out how to test some follow-on ideas for the Mobility Air Force’s Aircrew and Aircraft Tasking System, as well as equipment sustainment for the Expeditionary Combat Support System, and analyzing surveys for contracting. Not only can she analyze the heck out of anything, she is being trained to be physical training leader, and can get you to sweat with the best of them.

LGY’s current division chief, Dr Thomas Gage, reviewed *oodles* of papers, reports, and articles, and began searching for a *better way to do business*, realizing that reviewing the same type of thing all the time, one can easily become *stale*; just as when he was programming a computer. It becomes easy to make a mistake which may be impossible to find because you’ve seen the same thing so many times. The search continues. Dr Gage

attended the Air Force Operations Research Symposium this year in Newport News, Virginia, along with Major Walston, and presented a paper on a potential method for extracting more information from short time series. The method was originally used in finance and in ecological research. Dr Gage rewrote the

AFLMA Study Assessment Team Operating Instructions several times in 2008—AFLMA processes and procedures continue to evolve. This is a work in progress as the Air Force continues to do *more with less*. AFLMA continues to seek ties with others who can help, and to assist others in their search for effectiveness.

A photograph of two men in business attire (white shirts, ties, and suspenders) wearing large red boxing gloves. They are standing in an office environment, with one man appearing to be in a boxing stance towards the other. The background shows office furniture and a window with blinds.

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# Analytical Support

The combat analyst is a relatively new animal. Many people do not know we exist and therefore are unaware of the benefits we bring to the table. Additionally, many analysts are either new or have not yet deployed and may not fully understand the deployed environment. Exercises, wargames, and experiments provide a mechanism to benefit both groups. By participating in these games and exercises, analysts can not only gain experience, but can also help *advertise* analytic capabilities to deployed leadership.

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**Major Jennifer G. Walston, PhD, AFLMA**  
**First Lieutenant Frank A. Iubelt, AFLMA**

## Introduction

The Air Force analyst's role in combat operations has evolved over the last decade. Considerable effort has been expended in developing the *combat analyst*.<sup>1</sup> One way of accomplishing this is through exercises, wargames, and experiments (EXWAREX). Over the last year, two of Air Force Logistics Management Agency's military analysts have participated in such activities. This article will discuss these wargames and exercises, the combat analyst's role, and some of the experiences that were found to be beneficial to the development of combat analysts.

## The Combat Analyst

Because many in the Air Force are unfamiliar with the term *combat analyst* and may not be familiar with the important role analysts play in operations, a brief moment will be spent defining and describing such entities here. One definition is that they are "proactive planners who apply analytical tools and critical thinking in order to frame alternatives and aid the warfighting commander in making effective decisions based on sound analytical analysis."<sup>2</sup> The AF A9 (Studies, Analyses, Assessments, and Lessons Learned) definition is that they are "personnel trained in operations research who deploy to support air operations centers (AOC) and warfighting staffs, improve commanders' decisionmaking processes,

integrate knowledge across stove-piped systems and processes, provide unique perspective and problem solving skills, discover problems not recognized as significant, improve implementation of new warfighting capabilities, and guide assessment of ongoing operations."<sup>3</sup> Unquestionably, that is a tall order. So how are analysts trained to accomplish it? By placing young analysts in EXWAREX, Global Mobility (GLOMO), and United Engagement (UE) wargames so that they can gain the needed experience.

## Role of Analysts in EXWAREX

By participating in EXWAREX, the analysts train as they will fight. The combat analysts serve many roles in the area of responsibility. They have formal roles on the Air Force forces (AFFOR) staff, in the Joint or combined air operations center (JAOC/CAOC) operations assessment team and air mobility division, and in A4. They also provide an analytic perspective, ad hoc analysis capability, and in depth knowledge of critical software tools like Microsoft Excel. The analysts benefit by gaining needed experience, the rest of the exercise participants benefit from the unique capabilities analysts provide, and all parties learn how to leverage each others skills.<sup>4</sup>

## Experience in EXWAREX

In January and May 2008, Major Walston deployed to Germany as part of Austere Challenge 2008 (AC



08). AC 2008 was the largest exercise and training event held by United States European Command since Atlantic Resolve in 1994. The purpose of the exercise was to certify United States European Command's Joint task force and Joint forces component commanders, and to train other Service component elements in the conduct of Joint combat operations. Specifically, AC 2008's focus was on a *swiftly defeat the effort* campaign.<sup>5</sup>

As an observer and trainer for AC 2008, I had the opportunity to see an even larger part of the exercise. Not only did I see the analyst's role in the AFFOR staff, I was also able to observe the assessments team in the AOC. What I gained was a greater understanding of what would be expected of me during a deployment. For example, I was able to observe and better understand the interactions among the staff, the products generated, the expectations levied on the analysts, and most importantly, the opportunities an analyst has to positively impact the entire process. In my opinion, every young analyst would benefit from participation in an exercise prior to deployment.

### GLOMO and UE 2008

In June 2008, Lieutenant Iubelt deployed as part of GLOMO and UE 2008. UE 2008 and GLOMO were an opportunity for wartime planners from across the Air Force, Army, and coalition nations to investigate future concepts in air mobility. The annual event brings together people who can help the Air Force and Department of Defense global mobility and logistics systems better plan and build new concepts and ideas and helps shape Air Mobility Command's strategic planning via evaluation of air mobility and logistics capabilities 12 years in the future. Although GLOMO and UE are very similar in format, GLOMO investigates future concepts in air mobility where UE is an Air Force wargame exercise designed to examine applications in aerospace power to support warfighting commanders-in-chief.<sup>6</sup> Although GLOMO and UE are opportunities for a wartime planner, they also are perfect opportunities for a young analyst to practice his or her operational research skills in a fast paced wartime environment.

An analyst participating in these wargames will have the opportunity to play different roles and have many responsibilities. Although not limited to the two, I have been given the opportunities to do both wrap up of final stats and decisionmaking analysis in the heat of the moment. Although important for future decisionmaking, after the fact wrap up can be a little slow going, whereas being down in the trenches with the logistics group making heat of the moment decisions can be pretty action packed. Neither being more important than the other, the latter of the two is my favorite. That being said, there are a few things you might want to familiarize yourself with before you throw yourself into the fire of a fast paced wargame.

First things first—can you talk the talk? The race has begun, and as anyone who has ever participated in a wargame knows there's no time to sit and think about what to do next. The pace is accelerated, there are times where 25 days will pass in a 12-hour period and there is definitely no time to stop, take a breath or smell the roses. When the commander Joint task force (CJTF) looks at you and says, "I need POL numbers for bases X, Y, and Z, to include on hand and sustainment, and while you are at it I

need the number of PAX the terminal at base Z can put through in a 24-hour period, there is no time to go and look up what POL or PAX stands for or to find out what he means by POL sustainment. You need to take the time before you get there and be able to talk the talk.

The other issue I've found, in a Joint environment, is that no one really knows what you do, especially when dealing with the Army. Most couldn't tell you what an operations research (OR) analyst is. Most people just snicker when you try to throw the phrase *combat OR* into the mix. During my most recent wargame event, UE Capstone, the deputy CJTF looked at me and said, "LT, you ever dealt with logistics readiness? Either way, I need all the post attack impact and solutions updated on our logistics readiness. Hey, and while you are out grab me a coffee, one cream and two sugars." Obviously my answer was, "yes sir I'll get right on that," and I was able to get all the information and coffee needed. Aside from the coffee, OR analysts possess many skills that can be used in the logistics environment that your CJTF, and many others might not be aware of. Data mining, forecasting and statistics are just a few examples of tools used by an analyst to help forecast trends and show efficiencies. Let everyone know what skills you possess. It could be the difference between getting coffee and producing useful information utilized in winning a war.

### Conclusion

The combat analyst is a relatively new animal. Many people do not know we exist and therefore are unaware of the benefits we bring to the table. Additionally, many analysts are either new or have not yet deployed and may not fully understand the deployed environment. EXWAREX provides a mechanism to benefit both groups. By participating in these games and exercises, analysts can not only gain experience, but can also help *advertise* analytic capabilities to deployed leadership. In the end, everyone will benefit—a win-win situation.

### Notes

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# ingenious

Ingenuity and creativity go hand in hand. They help us support a diverse—flight line to headquarters—customer base and take on and solve the toughest logistics problems facing the Air Force. They also help us develop the high-quality, tailored solutions our customers, partners, and competitors have come to know.

**AFLMA**  
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The Air Force conducted a worldwide, wall-to-wall inventory of nuclear weapons related material (NWRM) last spring in response to the shipment erroneously sent to Taiwan. The Air Force Logistics Management Agency (AFLMA) was asked to collect the statistics and provide a summary of the inventory results. The subtitle of this paper is meant to pique your interest, but the AFLMA spent many hours, days, and nights reconciling inventory balances and reporting Air Force inventory accuracy to the Air Staff and eventually to the Secretary of Defense. This article describes the inventory process, provides some lessons learned, and some recommendations for future inventory control of NWRM.

# Inventories for NWRM

## How We Spent Our Spring Vacation

### The Process

In order to conduct a wall-to-wall inventory, the first task was to determine what items are NWRM. As it turns out, there was no definitive definition of what constitutes NWRM; therefore, a definition and list of NWRM items had to be generated. In fact, there were several lists generated and led to some confusion. The personnel doing the counting at the various bases and depots had a different list of items than the Air Staff had provided to us. Eventually a list of 157 items was identified and became the official list, but not until some personnel conducted inventories on items that turned out not to be NWRM items. The DoD has subsequently provided a definition of NWRM which should help to avoid any future confusion. In fact the Air Force plans

**Improved accountability and the enterprise management of critical nuclear weapons related material (NWRM) assets are of paramount importance to the Air Force. The Air Force Logistics Management Agency will continue to assist the Air Force by developing procedures for the periodic worldwide inventory of NWRM assets based on the lessons learned from last spring's wall-to-wall inventory.**

**Gale J. Bowman, AFLMA  
Douglas J. Blazer, PhD, LMI  
MSgt Ricky D. Benton, AFLMA**

to establish coding to identify NWRM items.

Initially the base and depot personnel doing the counting were told what items to count and given a spreadsheet to fill in with their count. Some also provided serial numbers, although there were no standard set of serial numbers for these items. This meant that different locations could have the same serial number for the same item. In addition, there were no serial numbers on supply records for the vast majority of these items. The Air Force has now developed ways to apply serial number control on all NWRM.

The spreadsheets were forwarded to the AFLMA to consolidate and provide Air Force-wide inventory accuracy statistics; however, there was no way to determine inventory accuracy. To determine accuracy, the counts had to be compared to the accountable balances in the various Air Force supply systems (Stock Control System [SCS], the Standard Base Supply System [SBSS], and the Defense Logistics Agency [DLA] supply system). There are multiple types of accountable balances (such as supply points, warehouses, and equipment accounts) in the Air Force supply system, and there was no way to link an on-hand count to a particular supply accountable balance. In addition, the count included items installed on end items which are not on supply accountable balances. Given these circumstances, the first count was not useful in determining inventory accuracy against accountable records.

In response to this challenge, the AFLMA developed new formatted spreadsheets that displayed the accountable balances for each location (base and depot) and for each type of accountable balance. The AFLMA queried the Air Force Central Supply Data Bank, to provide the base supply retail accountable balances. Air Force Materiel Command provided the depot accountable balances.



SBSS Balance	Base Count	Overages	Shortages	Percent	Comments
3,000	2,999	-	1	99.97	Inventory Accountability
3,000	3,149	150	1	94.97	Inventory Accuracy

**Table 1. Notional Base Inventory Results**

The new spreadsheet also showed where there were differences between the overall count and the total accountable balance at a location. The new spreadsheets included detailed instructions, so the base and depot personnel could provide the count against the applicable accountable balance. The base and depot personnel were also instructed to identify any installed items as they were not to be included in the inventory.

Base and depot personnel filled in the spreadsheets, and then returned them to the AFLMA, who consolidated the results with inventory accuracy totals. The inventory accountability rate for items on record included shortages only; inventory accuracy rate included both overages and shortages. Table 1 shows the format of the AFLMA consolidated data. (Note Table 1 uses notional data—it is meant to show the format, not the actual results).

The AFLMA summary data identified inventory imbalances—both overages and shortages. The spreadsheets were provided to the Air Staff, base, and depot personnel. The spreadsheets were used to validate the inventory count for the imbalances. The AFLMA received updated counts daily for two weeks. Each updated count required a new overall summary for the Air Staff. Daily updates were provided to Air Staff.

This process was fairly straightforward for the items at the bases, but it did not work as well for NWRM items at the depot and contractor facilities. The SCS did not identify depot balances in all of the possible accountable balances. The depot (wholesale) stock is managed by DLA, while other depot balances could be in maintenance or in contractor facilities. The SCS accountable balance did not identify the balance to the specific location (which contractor). As it turned out, DLA provided its count, accountable balances, and inventory imbalances.

### Lessons Learned

There were a number of important lessons learned and recommendations from the worldwide inventory.

- The inventory count must be validated to the specific accountable balances. The count should be made without knowing the accountable balance, but once counted, the actual number counted must be compared to the accountable balance and any discrepancies must be recounted. The validation must be for each category of accountable balance. For example, the count for items on a supply point must be compared to the supply point balance. Originally we were provided a total count for the base and not a count for each category of inventory.
- Develop a special code to identify and ensure special management for NWRM. Besides the confusion over the actual list of NWRM items, there is no special coding on the items so base and depot personnel know what items require special handling.
- Develop an improved process with enterprise oversight to identify which items require NWRM coding. There was no clear definition of NWRM, so there was confusion over what items were NWRM.

- Require enterprise inventory review prior to any inventory adjustments. The Air Force needs to manage NWRM items as an enterprise—any adjustments made to balances should be done with oversight

over all inventories worldwide. One base should not make an adjustment on an item without a worldwide count of that item. Item managers should approve all adjustments to inventory after a worldwide search to try to resolve any account imbalances.

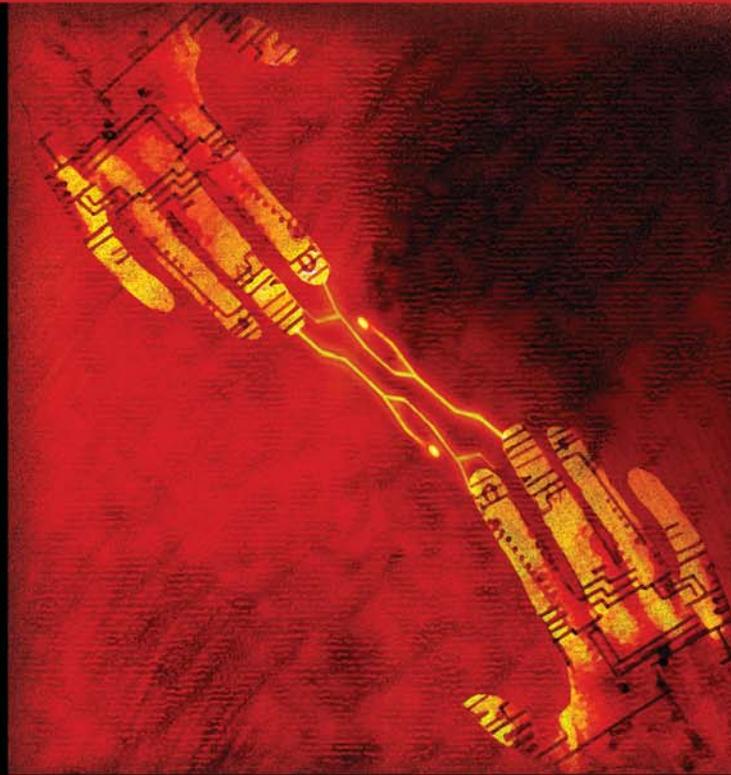
- Use serialized control procedures for NWRM items. Each item should be serialized and the accountable systems be managed by serial number. The Air Force should implement automatic identification technology to augment serialized control. This would reduce workload in the periodic inventory of NWRM and help provide positive inventory control.
- Ensure all NWRM are reported via the Recoverable Asset Management Program (RAMP) to the Stock Control (D035) system. Not all consumable NWRM items were being reported to RAMP. The item managers must have complete visibility of all NWRM. The Air Force may also want to RAMP report NWRM equipment items to ensure all balances are in one system (equipment in-use balances are in the Air Force Equipment Management System, but not in Stock Control).
- Improve the Air Force’s intransit control processes. We found many open intransit details for NWRM items—some were over 1 year old. The shipped items had been received, but supply records did not clear the intransit records. To ensure positive inventory control, the Air Force must improve its intransit process to track shipments intransit and ensure shipments are received and records closed out. The Air Force should take even more stringent procedures for the shipment of NWRM items. The AFLMA has made several recommendations in past reports aimed at improving the Air Force’s intransit process. The Air Force should
  - Continue the development of the Enterprise Solution–Supply (ES-S) requisition reconciliation initiative to include items being shipped from the depot to the bases.
  - Continue the development and fielding of the ES-S intransit (including retrograde) initiative.
  - Expedite the implementation of the recommended improvements identified by the AFLMA retrograde and tracer action required studies.
  - Ensure the Expeditionary Combat Support System (ECSS) includes all the special NWRM system requirements. ECSS is scheduled to replace multiple legacy systems including Stock Control and the Standard Base Supply System, which are currently the accountable systems for NWRM.

### Summary

Improved accountability and the enterprise management of critical NWRM assets are of paramount importance to the Air Force. The AFLMA will continue to assist the Air Force by developing procedures for the periodic worldwide inventory of NWRM assets based on the lessons learned from the 2008 wall-to-wall inventory.

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*Once Calibrated You Become a Changed Person*

# Calibrate Yourself

**Playing this trivia game will calibrate you for real. Getting better at estimating your uncertainty with these trivia questions, and pretending that you are betting on your answers, will calibrate you—that is, make you better at estimating your uncertainty in real-life situations. This is borne out by his experience.**

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**Thomas Gage, PhD, AFLMA**

**H**ere is your chance to show off your knowledge of trivia, and still serve a serious purpose. The purpose is calibrating yourself. We all know how important it is to work with calibrated tools. You certainly wouldn't want to depend on an uncalibrated scale to keep track of your weight before your official weigh-in. No. It's better to have your real weight the whole time, not just at the last moment—no big surprises at the end for you. But it's also possible, in fact probable, that you need calibration, too, so you'll get better mileage and not get some big surprises at the end of whatever you're trying figure out. To quote Pat Plunkett (Department of Housing and Urban Development) "Once calibrated, you are a changed person. You have a keen sense of your level of uncertainty."<sup>1</sup>

We've all heard Lord Kelvin's dictum about measurement: "... I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind...."

There is a fair amount of controversy about measurement. You will often hear the argument that this process or that value is not measurable, or perhaps even is unethical to measure. This usually results from people having differing, contradictory, inconsistent, or unuseful ideas about what measurement is and can do for us. Douglas Hubbard, author of *How to Measure Anything*, suggests a definition that you may not have seen before: "A set of observations that reduce uncertainty where the result is expressed as a quantity." Such uncertainty reduction can be worth a great deal of money, and in a military context, can be almost invaluable (but the value can still be measured.) It can certainly be worth your while to understand that while you may not know everything

about what the enemy intends, by expending some effort, you can know something. While you may not know exactly when the spares will arrive, it is worth some effort to reduce the uncertainty about when they will arrive.

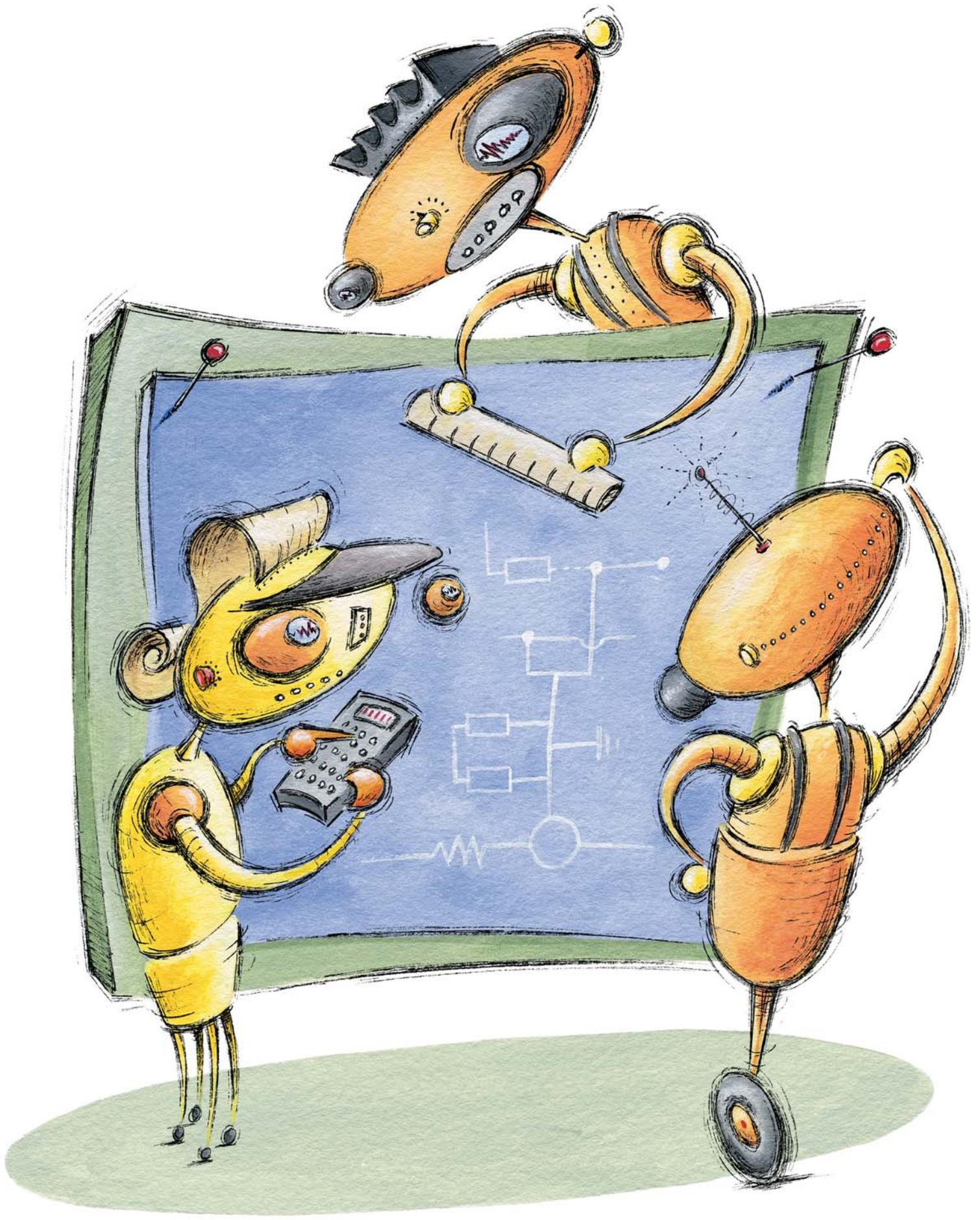
But what does it mean to calibrate yourself? Hubbard believes most managers are overconfident when assessing their own uncertainty. From my own observation, many of us are quite certain of our facts, even when we are dead wrong. This is illustrated in an anecdote from Robert Burton's *On Being Certain*.

Within a day of the Challenger explosion, Ulric Neisser, a psychologist who studies *flashbulb* memories (the recall of highly dramatic events), asked his students to write down exactly how they'd heard about the explosion, where they were, what they'd been doing, and how they felt. They were interviewed two and half years later. Twenty-five percent of the students' accounts were very different from their journal entries. More than half had some lesser degrees of error; less than 10 percent had all details correct. Many expressed a high level of confidence that their memories were correct, despite being confronted with their own handwritten journals. One student's comment was "That's my handwriting, but that's not what happened."<sup>2</sup>

An old Chinese proverb sums this up: The palest ink is better than the best memory.

Another quote from *Why We Make Mistakes* is illustrative: "...most of us tend to be overconfident, and overconfidence is a leading cause of human error."<sup>3</sup>

Interestingly, researchers have discovered that odds makers and bookies are generally better at assessing the odds of events than executives. Few people are naturally calibrated estimators. However, several studies have demonstrated that better estimates are attainable when estimators have been trained to remove their personal estimating biases. Hubbard believes that measuring your own



Number	Question	Lower Bound (95% chance value is higher)	Upper Bound (95% chance value is lower)
1	What percentage of bronze is typically made of copper?		
2	How many countries have at least one McDonald's?		
3	How many employees did eBay have in the first quarter of 2006?		
4	What was the population of Miami (within the city limits, not the entire metropolitan area) in 1990?		
5	How many casualties did the French suffer in the Battle of Waterloo?		
6	What is the range in miles of a Minuteman Missile?		
7	What percentage of information technology jobs in the US were unfilled in 1997?		
8	The Supremes' (with Diana Ross) song <i>Stop! In the Name of Love</i> was how long? (minutes, seconds)		
9	How many undergraduates attended Cambridge in 1990?		
10	If you could jump 50 feet straight up into the air, how many seconds would you be airborne before you landed?		
11	How many gallons are in a bushel (they are both measures of volume)?		
12	How many sovereign rulers has England had in the last thousand years?		
13	If the air temperature was 5 degrees below zero (Fahrenheit) and the wind speed was 15 mph, what would the temperature adjusted for wind-chill be?		
14	Average cost of testing in software development is what percentage of total project costs?		
15	On average, if a software development project was projected to take 17 months, it actually takes how many months?		
16	How many meters tall is the Sears Tower?		
17	How many gold medals did Jesse Owens win at the 1936 Berlin Olympics?		
18	In 2005, the average combined MPG for all US cars and light trucks on the road was how much?		
19	The average house in the United States uses how many gallons of water per day?		
20	What was the average price in the United States of a house sold in 2001?		

Table 1. Calibration Range Test

uncertainty is a general skill that can be taught with a measurable improvement, and gives the details of his experience in doing this with several hundred people. Training can calibrate people so that of all the times they say they are 90 percent confident, they will be right 90 percent of the time.

So, let's get calibrated. The *game* here is in two parts. There are range questions and true-false questions (Tables 1 and 2). For the first type of question, you will provide your 90 percent confidence interval—a number range within which you believe the answer lies, with 90 percent confidence—you believe there is a 5 percent probability that the true answer is higher, and a 5

percent probability that the answer is lower. For the second type of question, you will give your answer as true or false, and estimate the probability that you are correct. You could answer anywhere between 50 percent and 100 percent. If you estimate 50 percent, then you believe your answer is purely a matter of chance—you have a 50–50 chance of being right, that is, you really have no idea whether it's true or false. 100 percent means you are certain you know this one. By taking several of these *tests* in succession, you will find you can get better at estimating your true uncertainty. When taking these tests, don't look up anything, don't calculate anything—that's not the point. The

point is to calibrate your uncertainty, not to *get it right*. Some of the questions are quite obscure, but you could probably find an answer by *Googling* it. Don't do that. Provide your answers without using reference materials.

Interestingly, Hubbard claims that playing this trivia game will calibrate you for real. Getting better at estimating your uncertainty with these trivia questions, and pretending that you are betting on your answers, will calibrate you—that is, make you better at estimating your uncertainty in real-life situations. This is borne out by his experience.

**Ninety Percent Confidence Interval Questions.** For each of the 90 percent Confidence Interval questions, provide both an upper and a lower bound. The range should be wide enough that you believe there is a 90 percent chance that the answer will be between your bounds.

**Binary Questions.** Answer whether each of the statements is true or false, and then circle the probability that says how confident you are in your answer. If you're utterly certain, you should circle 100 percent. If you have no idea whether you're right or not, circle 50 percent (that is, a coin flip could decide as well).

Focus on what you do know. For the range questions, you probably know some bounds beyond which the answer would be absurd. For example, a 747's wingspan can't be one mile wide, for example, nor could it be as short as you are tall, say 6 feet. For the binary questions, you probably have some opinion about which answer is more likely.

After you've finished, but before you look in the key, do the following: For the range questions, say you were offered a chance to win \$1,000 in one of the following ways:

- You will win \$1,000 if the true answer is between the numbers you gave for the 90 percent confidence interval. If not, you win nothing.
- You spin a dial divided into two unequal *pie slices*, one

comprising 90 percent of the dial and the other 10 percent. If the dial lands on the large slice, you get \$1,000. If it lands on the small slice, you win nothing.

Which of the two ways do you prefer? If you prefer to spin the dial, that means you think the dial has higher chance of payoff.

	Statement	Answer (T/F)	Confidence That You Are Correct (Circle One)
1	The melting point of tin is higher than the melting point of aluminum.		50% 60% 70% 80% 90% 100%
2	In English, the word <i>quality</i> is more frequently used than the word <i>speed</i>		50% 60% 70% 80% 90% 100%
3	Any male pig is referred to as a hog.		50% 60% 70% 80% 90% 100%
4	California's giant sequoia trees are named for an early 19 <sup>th</sup> century leader of the Cherokee Indians.		50% 60% 70% 80% 90% 100%
5	The Model T was the first car produced by Henry Ford.		50% 60% 70% 80% 90% 100%
6	When rolling 2 dice, a roll of 7 is more likely than a 3.		50% 60% 70% 80% 90% 100%
7	No one has ever been reported to have been hit by any object that fell from space.		50% 60% 70% 80% 90% 100%
8	Sir Christopher Wren was a British anthropologist.		50% 60% 70% 80% 90% 100%
9	Pakistan does not border Russia.		50% 60% 70% 80% 90% 100%
10	The Navy won the first Army-Navy football game.		50% 60% 70% 80% 90% 100%
11	The paperback version of the book <i>The Da Vinci Code</i> , as of July 2007, still ranks in the top 500 bestselling books on Amazon.		50% 60% 70% 80% 90% 100%
12	Italian has more words than any other language.		50% 60% 70% 80% 90% 100%
13	The month of August is named after a Greek god.		50% 60% 70% 80% 90% 100%
14	The deepest ocean trench is deeper than the Grand Canyon.		50% 60% 70% 80% 90% 100%
15	Abraham Lincoln was the first president born in a log cabin.		50% 60% 70% 80% 90% 100%
16	As of July of 2007, more people search Google for <i>Harry Potter</i> than <i>Hillary Clinton</i> (according to GoogleTrends).		50% 60% 70% 80% 90% 100%
17	The population of Alabama is higher than the population of Arizona.		50% 60% 70% 80% 90% 100%
18	No category 5 hurricane hit the US in 2004.		50% 60% 70% 80% 90% 100%
19	The UK is among the top 10 largest economies in the world (by GDP).		50% 60% 70% 80% 90% 100%
20	The movie <i>Forest Gump</i> has grossed more to date than <i>E.T. The Extra Terrestrial</i> .		50% 60% 70% 80% 90% 100%

Table 2. Calibration Binary Test

In other words, your stated range isn't really your 90 percent confidence interval. It might be your 50 percent or maybe 65 percent confidence interval, but not 90 percent. So you are overconfident. It is equally undesirable to prefer option 1, where you win \$1,000 if the answer is within your range. This means you are actually more than 90 percent certain that the answer is within your range. The only desirable answer is that you are indifferent as to which option, 1 or 2—your range is set so that it doesn't matter to you whether you choose option 1 or option 2. The same procedure applies to the binary questions. Say you have stated you are 80 percent certain about some question. If you prefer to spin the dial, you are probably less than 80 percent certain of your answer. Say you change the payoff odds on the dial to 60 percent. If you then consider spinning the dial just as good a bet (no better and no worse), then you really are about 60 percent confident that your answer is correct. Research indicates that even pretending to bet money significantly improves a person's ability to assess odds. So let's do it. This pair of calibration tests can be found on Mr Hubbard's Web site for his book, [www.howtomeasureanything.com](http://www.howtomeasureanything.com).<sup>4</sup> More calibration tests and material related to the book is also at this Web site.

Number	Answer
1	92%
2	120
3	11,600
4	358,500
5	37000
6	5000
7	10%
8	2 minutes, 52 seconds
9	10,000
10	3.525
11	8
12	47
13	-25 F
14	25%
15	33
16	443
17	4
18	19.8
19	350
20	\$179,500

Table 3. Calibration Test, Range Key

To score yourself, use the answer keys that follow (Tables 3 and 4). Whatever your score, you can calibrate yourself more by downloading other tests from Hubbard's Web site, [www.howtomeasureanything.com](http://www.howtomeasureanything.com). With one, two, or three iterations of such tests, you will find yourself better able to estimate your uncertainty about almost anything. For myself, I found that going through the exercise typically caused me to widen my interval estimates and really pay attention to what I thought I knew and what I knew I didn't know. Happy hunting. Calibrating yourself is only the first step in a journey. It is the basis for using those odds in a decision model and computing the value of information.

**Notes**

1. Douglas W. Hubbard, *How to Measure Anything, Finding the Value of "Intangibles" in Business*, Hoboken, NJ: John Wiley & Sons, 2007.
2. Robert Burton, *On Being Certain: Believing You are Right Even When You're Not*, New York, NY: St. Martin's Press, 2008.
3. Joseph T. Hallinan, *Why We Make Mistakes: How We Look Without Seeing, Forget Things in Seconds, and Are All Pretty Sure We Are Way Above Average*, New York, NY: Random House, Inc., 2009.
4. Hubbard.

Number	Answer
1	FALSE
2	TRUE
3	FALSE
4	TRUE
5	FALSE
6	TRUE
7	FALSE
8	FALSE
9	TRUE
10	TRUE
11	FALSE
12	FALSE
13	FALSE
14	TRUE
15	FALSE
16	TRUE
17	FALSE
18	TRUE
19	TRUE
20	FALSE

Table 4. Calibration Test, Binary Key

*The only thing necessary for the triumph of evil is for good men to do nothing.*

—Edmund Burke

*We are outnumbered, there is only one thing to do. We must attack!*

—Adm Andrew Cunningham, Royal Navy

*I said to myself, I have things in my head that are not like what anyone has taught me—shapes and ideas so near to me—so natural to my way of being and thinking that it hasn't occurred to me to put them down. I decided to start anew, to strip away what I had been taught.*

—Georgia O'Keeffe

**The Situation:**

**Problems are up.**

**What does the information mean?**

**Need it figured out.**



**The Solution:**

**AFLMA project**

**Tailored answers or solution**

**AFLMA**

Captain John Flory, AFLMA

# Becoming a Combat Analyst

**T**he summer of 2008 brought with it a novel experience—that of being a combat analyst in the air mobility division (AMD) of the combined air and space operations center (CAOC). Prior to this deployment, I considered myself a relatively seasoned analyst. I hold a masters degree in operations research (OR) from the Air Force Institute of Technology (AFIT), and my two previous assignments covered the *dynamic range* of possible capacities in which analysts typically serve. My first assignment as a major command (MAJCOM)-level personnel analyst emphasized short, quick-turn analysis augmented with an appropriate smattering of staff work. This is a sharp contrast to my current assignment as a logistics analyst, conducting months-long, exacting studies. I knew from conversing with previous

combat analysts that the experience would be more similar to my former job than the latter. As my departure date approached, I took more than an idle interest in knowing what skills were most salient for a combat analyst.

The CAOC environment was remarkably similar to my previous experience in some ways and notably different in other aspects. I was assigned to the AMD's Strategy division, which conducted assessments of the effectiveness of air mobility operations as well as developed strategies



to mitigate potential, long-term mission impacts. The AMD itself is set behind the combat operations floor, which is always photographed as the quintessential element of the CAOC; but other than a lower ceiling, AMD has all the same attributes. The space is open, allowing complete visibility of the entire division; Predator video feeds line its walls; and it frequently has a furor of energy that more closely resembles the New York Stock Exchange, than a typical office. Dust tends to permeate the ventilation system and gradually covers any undisturbed area in a light, brown coat. The bare walls, openness, and dusty concrete floor almost give the effect of a workshop, as if you expect to stumble upon a band saw, lathe, and drill press somewhere amongst the rows of personnel. I quickly learned some things are immutable as a combat analyst—most of your existence is still spent within the confines of a computer monitor. Yet other things are very different—“I don’t need that right away,” means you have the luxury of tomorrow morning (not next week) to complete it. So it is with these and other observations that I quickly began to identify the skills most certain to lead an aspiring combat analyst to success. Although it is difficult to precisely categorize each, I will talk about three main areas: technical skills, communication skills, and getting the 70 percent solution.

## Technical Skills

With a cursory look, it seems almost assured that the technical skills of a combat analyst are inherent in any analyst. After all, despite the jests made regarding our limited social skills and charisma, no one would disagree that analysts earn their keep by bringing a powerful amalgamation of math, computers, and, most importantly, critical thinking to bear on problems. Most of us have been to AFIT, and holding a masters degree in OR is almost a career must. Want the left null-space of arbitrary matrix  $\mathbf{A}$ ? No problem! We’ve been taught about simulation, multicommodity network-flow problems, linear programming, nonlinear programming, integer programming, dynamic programming, statistics, and finding the average wait time of a Markovian queue. And that’s just the math side of things. Bring computers into the mix and we can use programs such as SAS to crunch statistics, MatLab to crunch numbers, and Arena to crunch simulations. So the question is: Are the technical trappings of a combat analyst inherent in all this?

The answer, of course, is *yes*, but in the same way David was inherent in the original block of marble Michelangelo sculpted. Being a combat analyst is about focusing technical skills on a few key areas (chipping away the excess marble) yet still retaining the residual imprints of the more esoteric aspects of OR skills. Critical thinking, the most important skill learned at AFIT, is universally applicable. However, while some advanced OR techniques may be occasionally employed, in general the exigency and ambiguity of the deployed environment precludes their use. I often performed analyses to address questions or offer recommendations covering considerably large aspects of theater air mobility. These efforts could have taken a year and required the full arsenal of OR skills, but I only had a few days or a week. Such efforts require a skillful, back-of-the-envelope, common sense approach—capture the essence of the problem, not every detail. This also requires proper handling of ambiguity, which I’ll discuss in the third section.

In my experience, the most *mathy* skill a combat analyst needs is a solid knowledge of statistics. The AMD was a data-rich environment with passenger and cargo records for every sortie. Unfortunately, quantity and quality are not always synonymous. A large portion of my job was reconciling this sortie data using flight-crew inputs, two online mobility databases, and information from AMD’s mission executioners. Though validating data is quite dull, I became very attuned to the data’s underlying quality. It was common for multiple data sources to disagree on a sortie’s quantity of passengers and cargo. The data was fraught with inaccuracies and uncertainty as is much of the data collected in an operational environment. It is critical to be not only cognizant of this uncertainty but able to quantify it and not make more precise predictions than the data can support. Knowledge of regression analysis, ANOVA, and time-series forecasting is also useful as these techniques are quick and easy for time-critical analyses.

The combat analyst also needs to focus on a specific set of computer skills. Here’s a list of the analysis software available to a combat analyst: Excel, Excel, Excel, and Excel. Get my point? Sophisticated analysis software is simply not there. I built and relied on countless pivot tables for analyzing and reporting data. I also used several of Excel’s built-in statistical products. Perhaps it’s considered a bit *lowbrow*, but Excel can do a lot. Also critical are programming skills in Visual Basic (VBA), which can be used to automate Excel’s operations with macros. Many tasks require repetitive actions to such as *clicking and dragging* data, aggregating disparate data sources, conditioning data, computing metrics, and generating reports. The ability to automate these processes with VBA not only saves time but may be the only way they’re possible—especially if recurring. Additionally, an incoming combat analyst may inherit VBA products from a predecessor that have to be modified or maintained during the rotation. I worked with many Excel products that had evolved over multiple deployments into towering edifices of worksheets and macros.

It is clear that, in terms of technical skills, simplicity is key. Elaborate OR techniques require resources that simply don’t exist in a deployed environment. It is no irony that the best analysis effort I saw was done by a second lieutenant, a self-taught VBA and Access expert with no formal OR training, who used his skills to automate the theater’s commercial carrier, cargo bidding process.

## Communication Skills

It’s a quirk of nature, but it often seems as though apt mathematical and communication abilities are cut from the same stock, leaving a mind with more of one with less of the other. Don’t get me wrong—I’ve met plenty of analysts who are regular Benjamin Disraelis in their expression, but as a combat analyst, it’s often easy to overlook the fine-tuning necessary to communicate successfully. A combat analyst will interact primarily with two groups of people: peers and senior leaders. It is important to understand the goals and style of communication required for each.

Virtually all the analyses I did while deployed involved a team composed mainly of operators—air mobility pilots and navigators. The operators brought air mobility experience; whereas, I brought the technical expertise. Communication is the

bedrock for this relationship to be successful. For an analyst, it is important to ask questions and achieve a competent level of operational knowledge required for the job. Reading regulations and operating instructions will tell you everything about a process except how it really works. The only way to acquire a pragmatic, operational picture is by asking. Conversely, the combat analyst must communicate and interject, if necessary, with the requisite actions to make the analysis sound. The operators I worked with in AMD Strategy were incredibly intelligent and quick-thinking but lacked in-depth knowledge of analysis tools. My value was to offer suggestions for statistical and analytical techniques and to explain them in a way a nonanalyst could understand. I also spot-checked the analyses for problematic areas. In this way, we were able to develop both operationally realistic and analytically sound products.

Communicating with senior leaders is an entirely different matter. The same rules apply as back home only more so. It's about brevity, brevity, brevity. Many AMD analysis reports began with a *BLUF* (bottom line up front) section. This concept should frame communication with senior leaders. A senior leader is ultimately looking for a recommendation, not data. No more of the analysis should be presented than required for the senior leader to be comfortable with the results; and it should be distilled to its most salient points—the foremost one being the recommendation. To emphasize this, the deputy combined forces air coalition commander (DCFACC) mandated that every brief have a *purpose* slide highlighting its relevance. Furthermore, the format of the weekly status brief, traditionally dominated by data, was changed to a high-level, dashboard format. Under the new format, the DCFACC only examined data if an area failed to meet standards; otherwise, it was superfluous. Although many were skeptical of the new format, the brief's time was halved while simultaneously increasing attention on problematic areas.

Communication skills are easy to overlook, yet critical to a combat analyst. It's easy to become infatuated with technical details while failing to both gather operator inputs and report the results effectively to senior leaders. The latter is the most common offense. I've found it useful to keep a list of forbidden phrases in mind to never utter before senior leaders (in deployed and nondeployed environments), to include: "I wrote a macro...", "the standard deviation is...", "here's the regression equation...", "the way the heuristic works is...", and many others.

## Getting the 70 Percent Solution

What exactly is a getting the 70 percent solution? Let's start with an example.

Suppose you're asked to conjecture on the impacts of more or less air mobility assets. Where do you start? How in depth do you want to go? You could compute the average passengers and cargo such an aircraft is expected to carry and base it on that. But doesn't this ignore the fact that the remaining aircraft could be loaded more or less efficiently as a result? Would the effects be confined to one geographical area? Okay, how about doing a detailed simulation of the intratheater environment? But how would I know how to characterize the ground times, maintenance events, and passengers and cargo loaded? Isn't the data on passengers and cargo pretty inaccurate? If the data's inaccurate, can I do anything? In addition, doesn't this need to be done by close-of-business tomorrow?

This exactly illustrates a problem requiring a 70 percent solution, which is more art than science. It's about finding the best way to narrow the irreconcilable difference between the resources available (time, quality data, information, software) with the colossal problems facing you. How much fidelity is really necessary? With air mobility, I found the data scarcely supported analyses deeper than back-of-the-envelope. Furthermore, even if the data were perfect, the uncertainty of air mobility itself in a warlike environment precluded precisely determining a decision's effects. So an intricate analysis would be akin to measuring with a micrometer then drawing with a crayon and cutting with an axe. I don't have a prescribed process for getting the 70 percent solution. It requires a combat analyst to be familiar with the nuances of their particular environment. However, it's something every combat analyst should be consciously trying to master.

Senior leaders faced with complex, ambiguous choices want something better than a coin-flip. A 50 percent solution would be irresponsible but a 70 percent solution can make all the difference.

## Conclusion

Success as combat analyst requires specialized abilities. Technical and communication skills must be honed to meet unique demands of the deployed environment. Also a combat analyst must finely balance the resources at hand with the sheer scope of analyses requested by senior leaders to find an adequate, 70 percent solution. For analysts like me, with backgrounds steeped in AFIT, it is quite an adjustment. However, with some fine-tuning, analysts will find themselves ready to meet the challenge.

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*You can discover what your enemy fears most by observing the means he uses to frighten you.*

—Eric Hoffer

*If you don't know where you are going, you might not get there.*

—Lawrence Peter (Yogi) Berra, Baseball Player

*Obstacles are those frightful things you see when you take your eyes off the goal.*

—Henry Ford

# AFLMA Facts

## Articles Published

### Journals

Alice Marie Long, "Enterprise Architecture: Origins, Tools, and Insights," *Air Force Journal of Logistics*, Vol XXXII, No 4.

Anthony F. Antoline and Steven Green, "The Basics: Smart Operations for the 21<sup>st</sup> Century," *Air Force Journal of Logistics*, Vol XXXII, No 2.

Edward O. Bennett Jr, "Air Force Munitions ISO Management: Logistics Enterprise for Containers," *Air Force Journal of Logistics*, Vol XXXII, No 4.

James C. Rainey, Cindy Young, and Roger D. Golden, "Air Force Smart Operations Essentials: Facts and Glossary," *Air Force Journal of Logistics*, Vol XXXII, No 2.

Jennifer G. Walston, "Capturing Risk in Solution Prioritization," *Air Force Journal of Logistics*, Vol XXXII, No 3.

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Rodney E. McCraine, Kirk A. Patterson, and Sharon Gibson Heilmann, "Perceived Transfer of Basic Combat Skills in the US Air Force," *Air Force Journal of Logistics*, Vol XXXII, No 3.

Scotty A. Pendley, Benjamin A. Thoele, Timothy W. Albrecht, Jeremy A. Howe, Anthony F. Antoline, and Roger D. Golden, "Aligning Maintenance Metrics: Improving C-5 TNMCM," *Air Force Journal of Logistics*, Vol XXXII, No 1.

Scotty A. Pendley, Benjamin A. Thoele, Anthony F. Antoline, and Roger D. Golden, "Establishing C-5 TNMCM Standards," *Air Force Journal of Logistics*, Vol XXXII, No 2.

### Books and Monographs

Douglas J. Blazer and Jeffrey D. Sloan, "Logistics Support: Relating Readiness to Dollars," *Logistics Dimensions 2008*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

Frank Iubelt and Anthony F. Antoline, *Maintenance Metrics U.S. Air Force*, Montgomery, Alabama: Air Force Logistics Management Agency, 2009.

Jeremy A. Howe, Benjamin A. Thoele, Scotty A. Pendley, Anthony F. Antoline, and Roger D. Golden, "Beyond Authorized versus Assigned: Aircraft Maintenance Personnel Capacity," *C-5 TNMCM Study II*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

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John A. Flory, Douglas A. Blazer, and Gale Bowman, "DLA Forward Stocking: An Economic Analysis," *Logistics Dimensions 2008*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

Scotty A. Pendley, Benjamin A. Thoele, Timothy W. Albrecht, Jeremy A. Howe, Anthony F. Antoline, Major, and Roger D. Golden, "Aligning Maintenance Metrics: Improving C-5 TNMCM," *C-5 TNMCM Study II*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

Scotty A. Pendley, Benjamin A. Thoele, Timothy W. Albrecht, Jeremy A. Howe, Anthony F. Antoline, Major, and Roger D. Golden, "Aligning Maintenance Metrics: Improving C-5 TNMCM," *Logistics Dimensions 2008*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

Scotty A. Pendley, "C-5 TNMCM Study II: Realistic Metrics to Drive Operational Decisions," *C-5 TNMCM Study II*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

Scotty A. Pendley, Benjamin A. Thoele, Anthony F. Antoline, and Roger D. Golden, "Establishing C-5 TNMCM Standards," *C-5 TNMCM Study II*, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

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# at a Glance

Quick summary of AFLMA activities and results

## Edited Research or Peer-Reviewed Works

*AFLMA Year in Review 2008*, James C. Rainey and Cindy Young, eds, Montgomery, Alabama: Air Force Logistics Management Agency, 2009.

*Air Force Journal of Logistics*, Vol XXXII No 1, James C. Rainey, Cindy Young, and Roger D. Golden, eds.

*Air Force Journal of Logistics*, Vol XXXII, No 2, James C. Rainey, Cindy Young, and Roger D. Golden, eds.

*Air Force Journal of Logistics*, Vol XXXII, No 3, James C. Rainey, Cindy Young, and Roger D. Golden, eds.

*Air Force Journal of Logistics*, Vol XXXI, No 4, James C. Rainey, Cindy Young, and Roger D. Golden, eds.

*Maintenance Metrics U. S. Air Force*, James C. Rainey and Cindy Young, eds, Montgomery, Alabama: Air Force Logistics Management Agency, 2009.

*C-5 TNMCM Study II*, James C. Rainey, Cindy Young, and Roger D. Golden, eds, Montgomery, Alabama: Air Force Logistics Management Agency, 2008.

*Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*, James C. Rainey, Cindy Young, and Roger D. Golden, eds, Montgomery, Alabama: Air Force Logistics Management Agency, 2009.

*Logistics Dimensions 2008*, James C. Rainey, Cindy Young, and Roger D. Golden, eds, Montgomery, Alabama: Air Force Logistics Management Agency, 2009.

## AFLMA Results

## Meeting Air Force Logistics Needs

## 2008 Completed Projects

### 51 Total Projects

#### Maintenance

- 7 Studies

#### Readiness/ Transformation

- 37 Studies

#### Contracting

- 2 Studies

#### Wargames

- 3 Studies

#### Analysis

- 2 Studies

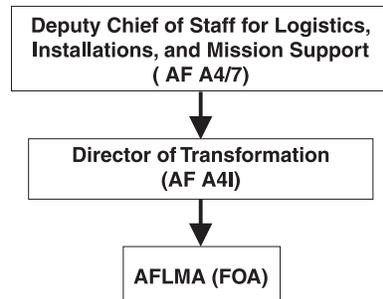
#### Publishing

- 17 Projects

## Command Relationships

The Air Force Logistics Management Agency is a field operating agency reporting to the Director of Transformation, Headquarters, United States Air Force.

### Chain of Command



## 2008 Completed Efforts

### **Books and Monographs**

*Contingency Contracting: A Joint Handbook for the 21<sup>st</sup> Century*

*Maintenance Metrics U.S. Air Force*

*Logistics Dimensions 2008*

*C-5 TNMCM Study II*

### **Reference**

*Cumulative Index: Air Force Journal of Logistics, Eighth Edition*

*Information for Contributors: Air Force Journal of Logistics*

*Information Book: Air Force Journal of Logistics*

*Strategic Plan: AFLMA*

### **Magazine**

*Air Force Journal of Logistics—four editions*

### **Other**

*AFLMA Year in Review 2007*

AFLMA Advertising Material

Journal Advertising Material

Agency Display Booth

Air Staff Support



# Meeting Your Needs

*Meeting your needs.* That means two things: first, understanding what the problem really is and, second, giving you a great, workable solution. That is sometimes tough. We take on the tough questions, issues, and problems; and we deliver robust, tailored answers and solutions. Our track record makes us the logistics studies and analysis agency of choice across the Air Force.

AFLMA not only delivers what the customer needs—at no cost to the customer—but also does it quickly.

**AFLMA**  
Generating Transformational  
Solutions Today, Focusing the  
Logistics Enterprise of the Future

# AFLMA

## Building 205 History

What would be known as Building 205 was originally built as Kilby Prison Hospital for tubercular prisoners in the late 1930s, although it was never used as such. The cost to

construct the facility was \$158,688.32.

In 1940, the need for additional flying training led to the establishment of

the Army Air Corps Basic Flying School, Municipal Airport, Montgomery, Alabama, at the site of Montgomery's Municipal Airport on 27 August 1940. On site were one lone hangar, a commercial airline building, and the unused Kilby Prison Hospital building.

Immediately, a tent city was raised in front of the hospital building, by then functioning as the headquarters building. During the war years, it also housed temporary bunks at times, two cadet messes, an officers' mess, an operations facility, an instructor facility, and three school facilities.

After World War II, Building 205 was utilized by several units or organizations: in the early 1960s the building housed the Deputy for Gunter, 3800<sup>th</sup> Air Base Wing; on 6 April 1966, Headquarters Fourteenth Air Force took up residence; and in 1975 the Air Force Logistics Management Center (the original name of the Air Force Logistics Management Agency [AFLMA]) moved into the building. AFLMA has occupied the building continuously since then.

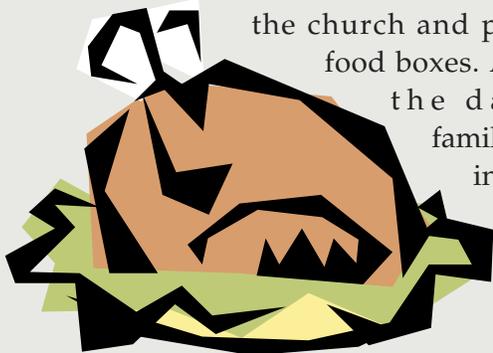
Over the years, a number of quality-of-life improvements were made to Building 205; however, it still had the mark of a building built in another era: 12-foot high ceilings, ceramic floor tile, exposed wiring and steam pipes, and concrete walls. By the 1990s, while the building was structurally sound, the World War II era mechanical and electrical systems were in need of a complete facelift to bring them up to current building codes. The building was renovated in 2004 and reoccupied by the AFLMA in 2005. Funding for the renovation was provided by the Air Staff.



### Good Sam—Helping Others

For more than 17 years, AFLMA has assisted the Good Samaritan Ministries of Montgomery with distributing Thanksgiving food boxes. This last year, volunteers helped assemble and pass out more than 440 boxes of food to families ranging in size from 1 to 14 members. The Good Samaritans is an interfaith committee formed from representatives of local area churches. They provide assistance when area churches and agencies request help for a family. The Good Samaritans maintain a food closet so they can respond quickly when necessary. They accept cash donations throughout the year and nonperishable food items around Thanksgiving.

On Tuesday before each Thanksgiving, volunteers meet at a local church where the food boxes are packed. The first vehicles to be loaded are those of the social workers who sponsor various families. AFLMA volunteers then load the boxes into the vehicles of families who come for their individual boxes. The volunteers also deliver to families who are unable to come to the church and pick up their food boxes. At the end of the day, needy families not on the initial list may receive a box if there are any left.



## of Alabama

The 2008 Heart of Alabama Combined Federal Campaign (CFC) proved to be a banner campaign. AFLMA continued its tradition of strong support and generosity. It surpassed the assigned unit goal with a total of \$12K in pledges—199 percent of the target amount—and earned the coveted Early Bird and CFC Gold awards.

The Agency had several *burger burns* that proved to be outstanding events and raised extra money for the CFC while also enhancing unit esprit de corps.

All in all, the 2008 Heart of Alabama CFC was a huge success not only for the Agency, but also the Maxwell-Gunter community at large.

## Meals on Wheels

The Montgomery Area Council on Aging is a nonprofit organization that

works through the Meals on Wheels Association of America (MOWAA) to provide warm meals to elderly and homebound people in need. However, MOWAA thrives only through its network of hard-working volunteers. More than half the people at the AFLMA take time out on a rotating schedule to help deliver these warm meals to folks in need. Volunteers provide a friendly smile; a chance

to communicate with community members; and most important, a nutritious meal to get them through the day. The AFLMA volunteers work hard but find the program rewarding. Delivering meals gives volunteers a chance to get away from their desks and reach out to a community in need.



## 2008 Annual Awards

**T**he AFLMA annual awards recognize outstanding job performance, community involvement, and civic service. The criteria for selection are demanding, and the evaluation process rigorous. The AFLMA norm is excellence, and to be selected signifies the individual demonstrated the highest standards of excellence, integrity, and service.

### **Civilian Category III**

Ms Gale J. Bowman, Analysis Division



### **Civilian Category II**

Ms Gloria J. Witherspoon, Command Section



### **Company Grade Officer of the Year**

Capt Jason B. Wolff, Wargames Division



### **Senior NCO of the Year**

SMSgt Edward O. Bennett



### **NCO of the Year**

TSgt Amy E. Young, Studies Division



# 2008 Maxwell-Gunter Awards



Captain Jason B. Wolff



Captain John A. Flory

Captain Jason B. Wolff and Captain John A. Flory were selected as 2008 company grade officer of the quarter, first and third quarter respectively, for Maxwell-Gunter organizations. These awards are given to those individuals who have documented outstanding job performance and have made a major contribution to supporting or improving the Maxwell-Gunter community.

# 2008 Quarterly Awards

To be selected as an AFLMA quarterly award winner is a particularly significant accomplishment. The recipient must have demonstrated outstanding job performance and meaningful community involvement or service. As with the annual award, the criteria are demanding and the selection process rigorous.

## First Quarter

### **Capt Jason B. Wolff**

Wargames Division  
Company Grade Officer

### **MSgt Robert W. Jones**

Command Section  
Senior NCO

## Second Quarter

### **Capt Steven Pena**

Business Operations Division  
Company Grade Officer

### **SMSgt Sid Burk**

Command Section  
Senior NCO

### **Ms Gale J. Bowman**

Analysis Division  
Civilian, Category III

## Third Quarter

### **Capt John Flory**

Analysis Division  
Company Grade Officer

### **MSgt Billy Crockett**

Studies Division  
Senior NCO

### **TSgt Amy E. Young**

Studies Division  
NCO

### **Mr John K. Dietz**

Analysis Division  
Civilian, Category III

### **Mr Will Carter**

Command Section  
Civilian, Category II

## Fourth Quarter

### **Capt Frank A. Iubelt**

Analysis Division  
Company Grade Officer

### **SMSgt Edward O. Bennett**

Transformation Division  
Senior NCO

### **TSgt Amy E. Young**

Studies Division  
NCO

### **Ms Mary H. Donald**

Business Operations Division  
Civilian, Category III

### **Ms Gloria J. Witherspoon**

Command Section  
Civilian, Category II