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# Expanding the Security Assistance Role in Electronic Warfare Management

By

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In the years since 1976 when the United States passed legislation to formally recognize Security Assistance as a part of foreign policy, the evolution of both policy and administration has occurred phenomenally. The requirement to keep pace with the expanding involvement in world military affairs has required that US military organizations amend and amplify their roles. In the feature article for the Spring 1997 issue of *The DISAM Journal*, "Only Yesterday: Security Assistance Over The Past Twenty Years," Dr. Larry A. Mortsof aptly describes this twenty years of changing philosophies, policies, economics, and application of the International Security Assistance and Arms Export Control Act of 1976. Dr. Mortsof's article deals with changes at and above Center level; however, this article will examine how the last 20 years have affected the Electronic Warfare Management Directorate and its International Programs Division (LNI) at Warner Robins Air Logistics Center.

During an address at the Air Force Security Assistance Center (AFSAC) "International Programs Corporate Conference V" in May 1996, Colonel Robert Kuehn, SAF/IAX, stated that "Part of the Air Force mission is the implementation of U.S. foreign policy. Therefore, Security Assistance is a part of, rather than apart from, the Air Force mission."

## THE FORMATIVE YEARS (1976 - 1980)

From 1976 until 1981, Electronic Warfare, as applied to Security Assistance (SA), was generally regarded as "apart from" the AF mission. It was not until the Reagan Administration that Security Assistance was truly recognized as a key component of foreign policy. Even then, Electronic Warfare (EW), now redesignated Electronic Combat (EC) systems were treated as "Cloak and Dagger" items. Vietnam era experiences highlighted a critical need for warning and protection features found only in the high technology systems affiliated with Electronic Combat. USAF, Army, and Navy pilots needed systems to protect aircraft from radar guided surface to air missiles (SAMs), and systems to detect and destroy unfriendly SAMs. Systems to meet these combat challenges were designed, developed and grew rapidly under the EW umbrella. Once designed and developed, EC technology was closely guarded. This protectionism promoted the attitude to limit EC technology to DoD aircraft.

Even though EC systems were candidates for security assistance sales, DoD continued to resist exporting EC capability to Security Assistance countries. Eventually older, retired AF EC systems were generally offered for FMS sale. An attitude of "Keep the Newest and Best At Home" prevailed until coproduction of F-16 fighters by European Participating Air Forces (EPAF) drove the inclusion of the AN/ALR-69(V) radar warning receiver as part of the aircraft sale. Although the EPAF countries were allowed to purchase the state of the art AN/ALR-69(V), EPAF system hardware and software support generally took a back seat to USAF support requirements.

*"As USAF avionics systems transitioned from analog devices to ones controlled by embedded computers, it was inevitable that such systems would be offered and sold as part of Security Assistance programs. While the USAF was struggling to define software support concepts for embedded computer avionics, a new dimension to the problem was added when this same support was required for Foreign Military Sales*

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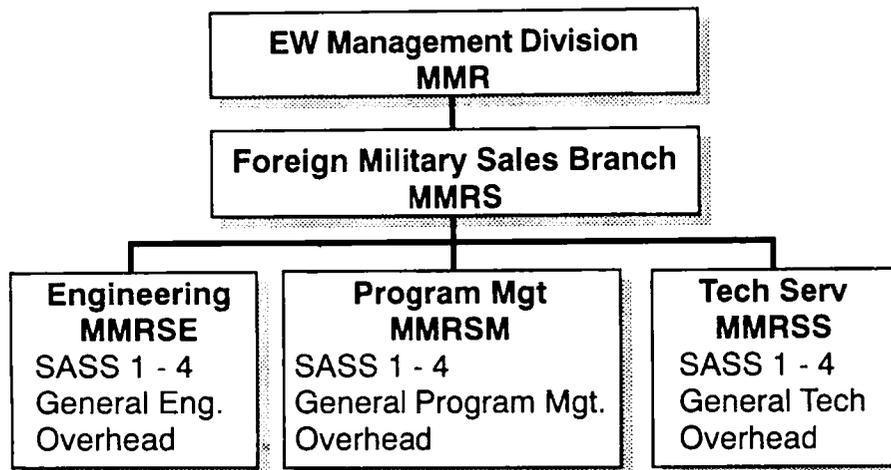
*(FMS) customers. . . . Nowhere has this added FMS support requirement had greater impact than on the airborne programmable Electronic Warfare (EW) systems supported at the Warner Robins Air Logistics Center, Electronic Warfare Management Division (MMR). Keeping these FMS systems operational requires not only traditional logistics hardware support, but also modification and update to FMS system software on a regular basis." [Batterman, p.9]*

Prior to the above publication, support of FMS EW systems had been provided on a time available, non-interfering basis by the same personnel responsible for support to the US Air Force. Using organic resources had significant draw-backs. First, the concerns already mentioned provided an atmosphere in which the necessary resources were never allocated to accomplish FMS work. Secondly, very little, if any, communication of FMS requirements occurred. For the most part, FMS EW systems sold during this time were delivered with rudimentary capabilities and minimal follow-on support. This unresponsive. "Sell and Forget" approach was soon challenged by friends and allies. The first iteration expanding the role and mission of WR-ALC EW management, the "Security Assistance Software Support" ("SASS") concept was created.

### **GROWING PAINS: SASS (1980 - 1984)**

*"There is general agreement that any EW system purchased by an FMS customer must adequately provide for active and/or passive countermeasures against threats faced by that customer. However, agreement on what is adequate is at the crux of the EW FMS software support problem. In all cases, FMS customers have required Threat Data Tables (TDTs) that are tailored to their own peculiar threat environment. Operationally, each user must determine display symbology and priority for various theaters of operation. Because the TDT reflects the countries' own defense needs, system software becomes unique for that user. In order to maintain operational suitability, system software must be updated on a periodic basis to reflect changes in the threat environment. . . . In 1980, a HQ AFLC software policy letter recognized the unique nature of EW FMS support requirements and that dedicated facilities, equipment, and people (over and above that required for USAF) would be needed. Because of the shortfall of available engineering and technical expertise, it was determined that contractor assistance would be required for software support areas. The result of this letter was the development of a SASS concept which required that individual laboratories be established for the software support of each FMS country. These labs, together with the dedicated government and contractor engineers and technicians, would provide software update support on a cyclic basis for each FMS customer, separate and apart from USAF software support resources. Initial development would still be provided by contract using a USAF OFP [Operational Flight Program] baseline with country peculiar Threat Data Tables." [Batterman, ibid.]*

As EW systems evolved from fixed capability, hardware-controlled items, to computer-controlled reprogrammable systems, FMS support requirements increased. The SASS concept was developed to improve responsiveness to reprogramming requirements, maintain national confidentiality and satisfy the tailored Threat Data Table requirement. Under SASS, each FMS country established a complete dedicated software support facility to support the EW system(s) they purchased. Facility development included a secured engineering laboratory area complete with Integrated System Support (ISS) test and development hardware, a hot mockup station (HMUS) containing a complete set of system components, as well as engineering and support personnel. These dedicated facilities, equipment and personnel were funded by the various countries through a U.S. Letter of Offer and Acceptance (LOA). The physical structure became U.S. property while equipment ownership remained with the purchaser. Dedicated personnel salaries were fully reimbursed by case funds.



### FMS ORGANIZATION SASS CONCEPT

*NOTE: Under this structure, personnel assigned to a SASS were Case Funded; General Support and Overhead were Administrative Surcharge funded.*

The SASS arrangement provided the FMS country timely response, predictable schedules, and a team of specialists. Communication channels between the FMS country and support personnel opened for the first time. Instead of programming FMS EW systems with presumed data, the capability to satisfy user need now existed. The down side, however, was the cost associated with providing the service. As the cost to build and equip a secure engineering facility approached \$2,000,000 with approximately another \$250,000/year in dedicated salaries, the SASS concept was not overly popular.

*"The concept of separate FMS labs, however, did not resolve several major issues. The single, most important problem that continued was the proliferation of significantly different systems configurations for various FMS customers. Configuration management was a nightmare, while what constituted follow-on support for a unique FMS OFP was still a question which remained unanswered. [What Mr. Batterman was saying is that the need for a unique FMS OFP was recognized, but the support logistics were still to be determined.]*

*By 1982, it was obvious the SASS concept had to be changed to meet four basic objectives.*

- 1. Standardize EW FMS system configurations.*
- 2. Provide cyclic EW OFP support, as well as TDT updates.*
- 3. Share equipment, laboratory, and manpower resources for FMS software support.*
- 4. Provide FMS customers with a total logistics support plan from initial hardware acquisition and software development through follow-on hardware and software updates for the life of the EW system." [Batterman, ibid.]*

### THE SECOND GENERATION: EWSIP (1984 - 1993)

Changing the support philosophy required a change in the role and mission of the organization. Shared facility and personnel concepts reduced individual investment costs, making support more attractive. The number of nations requesting support increased rapidly. Multiple

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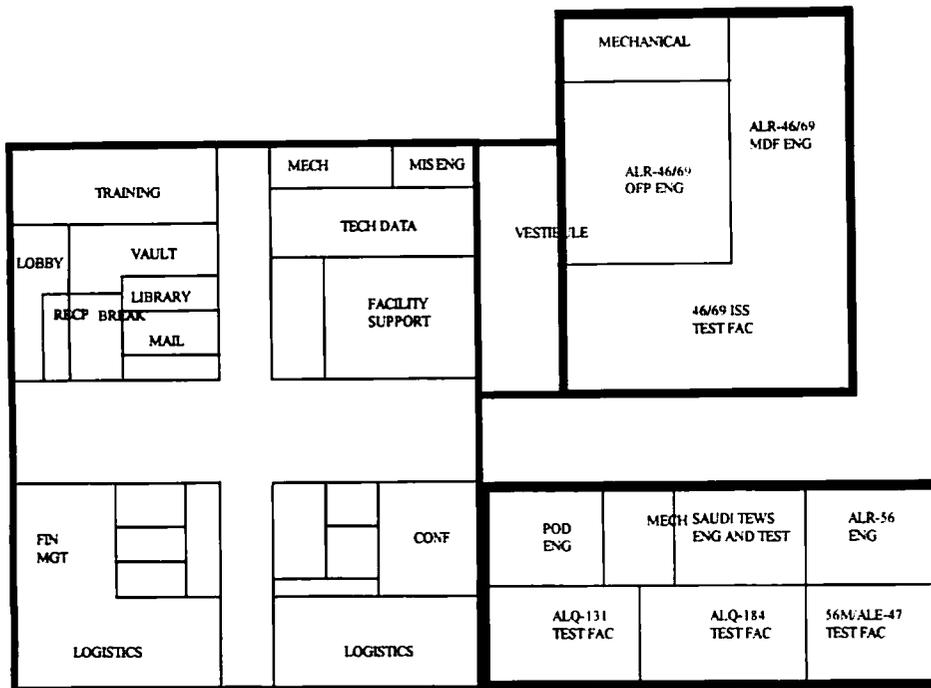
configurations of existing EW systems, newer systems being approved for sale and implementation of "Total System Support" broadened the areas of responsibility and instituted a "Customer/Supplier" relationship. With standardization, shared costs and improved customer service in mind, the "Electronic Warfare Standardization Improvement Program" (EWSIP) was conceived, formalized, and adopted.

*"Implementation of EWSIP was accomplished through the establishment of an International Logistics Branch within the Electronic Warfare Management Division and the revision of supplemental conditions to Letters of Offer and Acceptance (LOA) for participating FMS countries to include EWSIP as the concept for software support. EWSIP was presented to the FMS customer as a complete set of system support services, not a collection of individual laboratory facilities. It offered the following:*

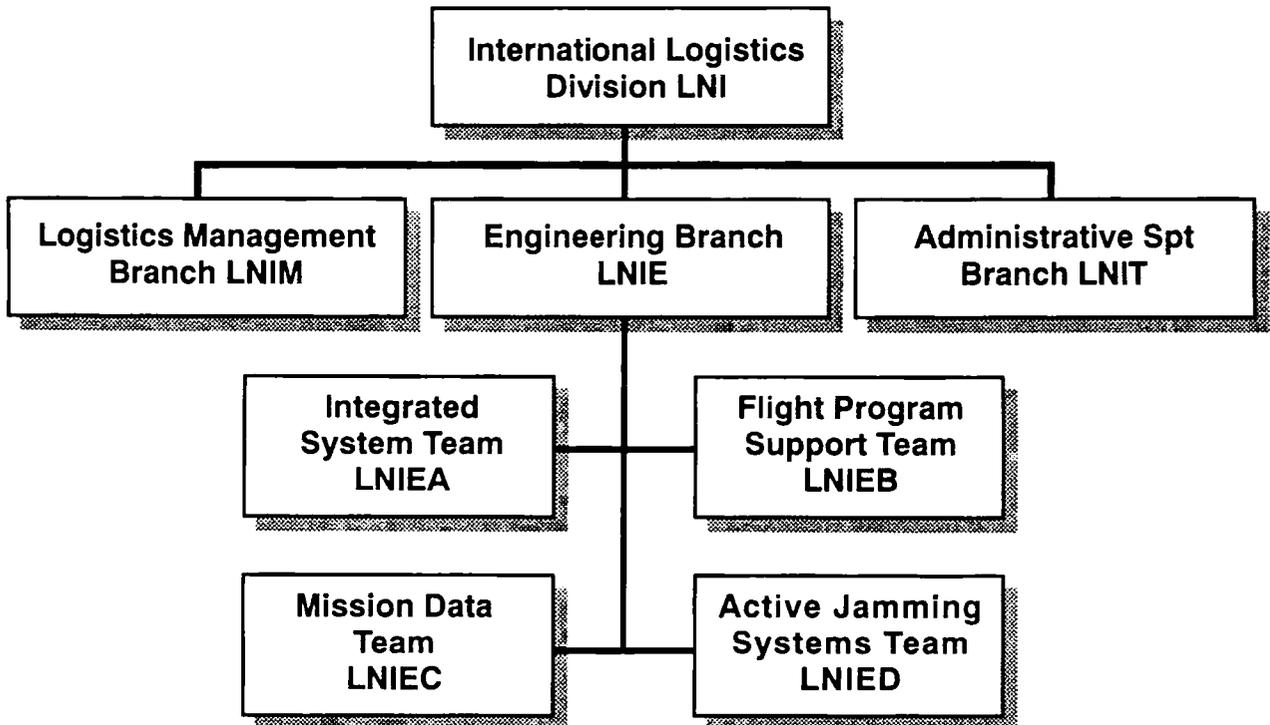
- 1. Initial FMS customer software, contractor developed under USAF technical management.*
- 2. Shared EWSIP laboratory to provide all system OFP support*
- 3. Shared SASS laboratory to provide TDT updates on a cyclic basis (normally 12 months).*
- 4. All EWSIP/SASS facilities are USAF operated and controlled, with contractor assistance as required.*
- 5. Engineering services to investigate reported deficiencies, both hardware and software, review and update technical data, and evaluate proposed system modifications (both USAF and FMS generated) for applicability to individual FMS customer system configurations.*
- 6. Complete logistics management services and configuration control.*
- 7. Annual review of system status with each FMS customer." [Batterman, ibid.]*

Implementation of the above principles was clearly a major shift in the role and mission. Increased service and an expanded customer/system support base required expansions of physical facilities and personnel strength. By the beginning of 1990, FMS EW operations occupied over 43,000 sq. ft of customer built engineering and support facility and employed nearly 100 case funded personnel.

The EWSIP concept and application were a leap forward in EW Security Assistance, providing a cohesive and integrated approach to FMS software support. However, it was principally centered on activity at WR-ALC and did not adequately address the involvement of other USAF agencies. With the change from Electronic Warfare to Electronic Combat (EC), SAF/IA directed that EWSIP be redesignated. The Electronic Combat International Security Assistance Program (ECISAP) is the latest concept. The additional scope, program responsibilities and participants are defined in AFMAN 16-101 (1 September 1995).



**EWSIP FACILITY**



**EWSIP ORGANIZATION circa 1993**

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## THE THIRD GENERATION: ECISAP (1993 - PRESENT)

The four basic objectives of EWSIP: Standardization, Cyclic Software Updates, Shared Resources, and Total Logistic Support have been retained in ECISAP. The seven services referenced above have survived but are slightly modified. Significant changes in responsibilities and representation contribute to enhanced effectiveness. The increase of roles and mission is illustrated by the Agency/Function Chart. WR-LNI is the executive agent for the program operating under auspices of SAF/IAW.

### KEY ORGANIZATIONS AND FUNCTIONS

AGENCY	FUNCTION
SAF/IA (*)	Overall guidance and oversight. The primary interface to the SA country. Communicate and approve policy.
HQUSAF/XOIIF (*)	Obtains release of system information.
USAF/AWC(*)	Conducts flight tests and evaluations. Develops countermeasures techniques and testing. Responsible for Mission Data Files for ECM and some passive warning systems.
HQACC/DOSS (*)	Coordinates tactical training. Insures Interoperability with USAF.
HQUSAF/XOF (*)	Plans and evaluates scripted exercises, joint activities.
AFMC/AFSAC	Intermediate level approval for policy and operations.
AFETC/AFSATS	Conducts all formal training. Advises on training matters.
WR-ALC/LNI (*)	Program executive agent. Provides depot level support. Responsible for Operational Flight Programs and some Mission Data Files. Provides Engineering, Technical and Logistic Management functions.
Security Assistance Country	THE CUSTOMER.
	(*) Indicates member of Electronic Combat Working Group (ECWG)

ECISAP was established and chartered to:

- Provide acquisition, logistic, engineering and training services to ensure the effectiveness of EC systems sold by the USAF to allied nations.
- Establish a focal point and single point of contact for activities of all components.
- Redefine and refine policies and practices of ancestral [legacy] programs in supporting EC in participating nations.

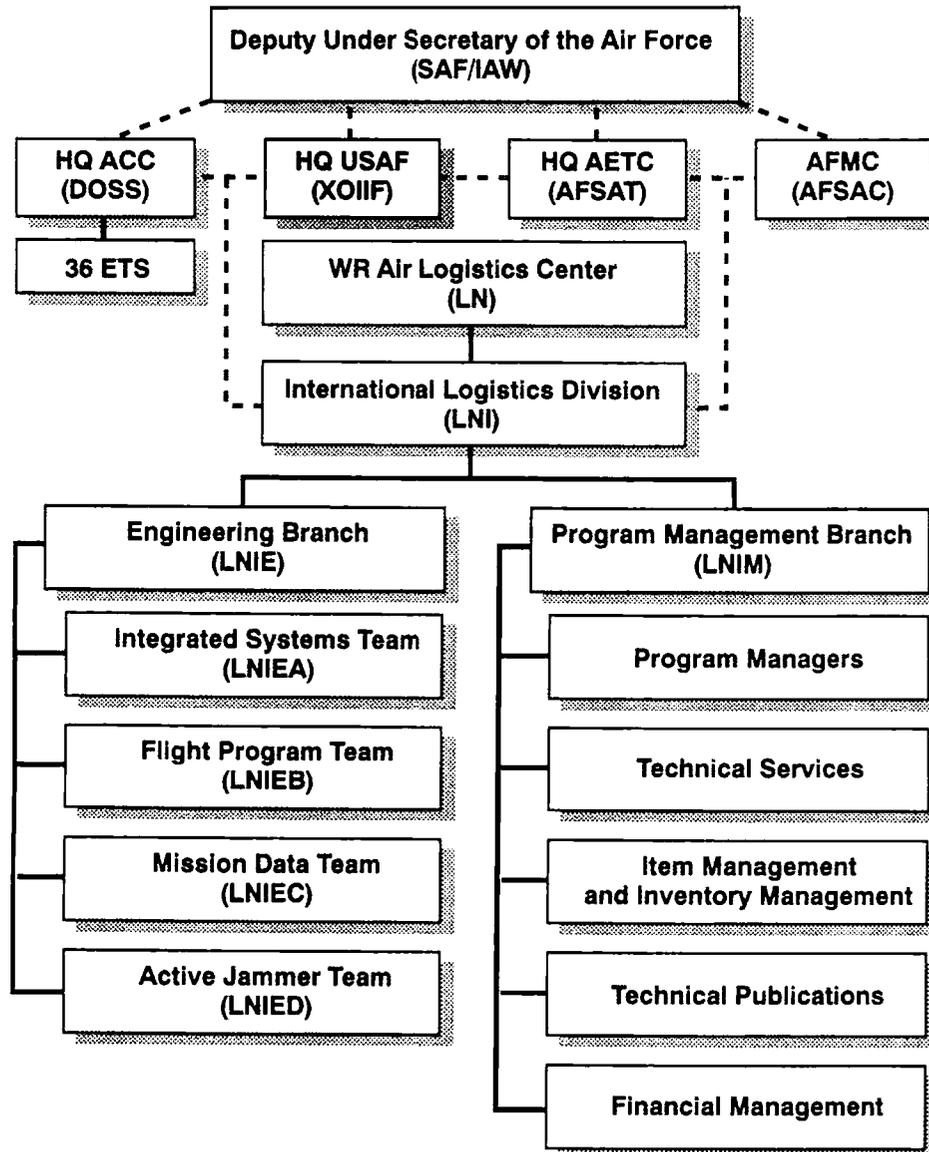
Benefits to US Government:

- Allows effective maintenance of good technical and diplomatic relationships with allies.
- Assures strong and capable coalitions.
- Insures minimum interference with USAF operations, yet effective and rapid transfer of resources when required.

Benefits to SA Country:

- Economical Cost
- Worldwide user experience
- Technological improvements
- Total system support

FMS customers have become considerably more knowledgeable of EW equipment configurations and capabilities and may desire to establish their own software support expertise. Even those countries that have used contractor support to develop an organic software capability have underestimated the magnitude of the effort and the required technical expertise, and in general have not achieved their desired degree of success. ECISAP's goal is to perform these actions within a context that does not release critical U.S. technology or degrade USAF system support.



NOTE: Dashed lines represent functional coordination channels.

### THE ECISAP ORGANIZATION

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Cooperative action from all involved USAF agencies has unified ECISAP into a program that looks at EW Security Assistance Software Support from a total perspective. Included are both current and future Security Assistance programs. The significant challenge facing ECISAP today is the increasing pressure for In-Country Reprogramming (ICR). This pressure is the result of national sovereignty concerns and increased marketing by defense manufacturers. Finding a method to simultaneously satisfy customer expectations and protect our national resources is a significant challenge. Only in this way can we insure fair and even-handed support to FMS customers, and insure continuing EC FMS system operational suitability. The development and evolution of programs has moved FMS EC to the forefront of Security Assistance. As of this writing, LNI through ECISAP, supports 15 Security Assistance and NATO countries. Support spans the EC spectrum from older systems retired from USAF use to the newest products approved for release.

## **THE NEXT GENERATION: BEYOND ECISAP**

As we begin the next 20 years in international security assistance, it is difficult to predict the degree to which the role and mission of USAF FMS EW support will change. If the past is a reliable indicator, one would expect "international" to become "intergalactic". Although that thought is probably absurd, it is entirely conceivable that Electronic Combat will encompass more than the present radio frequency (RF) spectrum. Other frequency bands are being incorporated. Infra Red (IR), Ultra Violet (UV), and Visible Light (Laser) have made their way into electronic combat. The near future will likely see Information Warfare (IW), Command, Control, Communications Warfare (C<sup>3</sup>W), and many more military applications subject to detection, deception, disruption, and destruction included. As international security assistance requirements change and grow, so will the role and mission of WR-ALC/LNI.

Mr. Darrell Williams, International Programs Division Chief says, "We are not only thinking 'out of the box', we have emerged from the box to improve our view of hidden opportunities. We now stand on the box and actively seek uncharted opportunities to improve our business and remain the Electronic Combat FMS Center of Continued Excellence."

Plans are currently being formulated to expand the LNI mission to participate in the Foreign Cooperative Technology Development program. Through this program the USAF and Air Force Material Command will achieve the advantage of savings in research and development while reaping the benefits of sharing technology with partners.

Another key role envisioned is "Showcasing" USAF EC capabilities and support throughout the free world.

We are currently reviewing efforts to develop Government/Industry Teaming that would allow LNI to perform software support of items purchased through Direct Commercial Sales. This applies now for USAF inventory EC systems: our aim is to expand the relationship to include "non-standard" commercially developed items. Appropriate safeguards will be required to preclude the appearance of government sponsorship of one manufacturer over another.

Our vision is to be the supplier of choice for electronic combat systems.

The events of the past, present, and those to come which affect roles and missions have replaced "Logistics" with "Programs" in our title. "Logistics" no longer adequately describes the activities and services accomplished. Being "a part of" the Air Force Mission is our greatest achievement.

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## ABOUT THE AUTHOR

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Thomas W. Batterman, *Security Assistance Software Support for Electronic Warfare (EW) Systems-Putting All The Pieces Together*, WR-ALC/MMRS, 1983.