1. The Case for Change

Electronic warfare (EW) acquisition faces unprecedented challenges and opportunities. The methods we have used to build new solutions are rapidly becoming obsolete. A variety of new reform policies signal that a new era in defense acquisition is upon us. The following are some examples of these new policies:

- Openness with industry
- Cost as an independent variable
- Lightning Bolt initiatives

As stated recently in the Journal of Electronic Defense:

> Old Crows will have to abandon some outdated notions as well as adapt to new technologies if the community is to survive—never mind flourish—in the future.

All indications point to a new way of doing business, and the Partnership Process was formed to develop methods that help us create that new way. The Partnership Process aims to ensure that we continue to provide EW systems that contribute to our military mission.

This chapter discusses the case for change in the following order:

- Recent setbacks in EW acquisition
- Our opportunity for change
- The Partnership as the leader of reform

If we do not radically change the way we do business, all of us—the warfighter, the acquisition community, industry, and the taxpayer—will lose. If we successfully meet these challenges, we all win.

1.1 Recent Setbacks in EW Acquisition

Several EW systems have been canceled or postponed over the past few years. This trend indicates that everyone involved in EW acquisition is losing the battle to put superior solutions in the hands of the warfighter.

Some of these setbacks are described in the following Figure 1-1, which is taken from a 1990 USAF Scientific Advisory Board (SAB) study on electronic combat (EC).

Program	Status
Area Reprogramming Capability (ARC)	Terminated
Precision Location System	Terminated
EF-111A Update	Terminated
Wild Weasel Update	Terminated
F/FB-111 Self Protection Upgrade	Terminated
F-16/ASPJ	Late
F-16/ALR-74	Deferred/Terminated
F-15/ALQ-135 Upgrade	Late
Seek RAM ECM Pod	Terminated
B-1B ALQ-161	Late/Deficient
Tacit Rainbow	Late
AFEWES Upgrades	Late
Classified Simulators	Terminated

Figure 1-1. EW Program Setbacks. Recent trends in EW acquisition indicate that we must improve the way we establish requirements, prove military worth, justify costs, and perform tests. Source: USAF SAB: Report of the Ad Hoc Committee on Electronic Combat.

The same SAB report stated that:

> The fundamental and overriding conclusion of the study is that the process for acquiring EC systems does not work . . . The EC acquisition process requires a great deal of discipline to ensure that it is implemented in a manner that anticipates and eliminates problems.

More particularly, the Department of Defense's (DoD's) recent decision to reduce funding for airborne suppression of enemy air defenses (SEAD) is perhaps the biggest blow the EW community has sustained in recent history. According to a recent report from the U.S. General Accounting Office (GAO), this underfunding contributes to the retirement of the F-4G and the EF-111A and decisions to reduce funding "were made without an assessment of how the cumulative changes in SEAD capabilities would impact overall war-fighting capability." Despite the GAO's objections, funding for SEAD capabilities has been significantly reduced.

These setbacks do not indicate a temporary problem and cannot be solved by minor modifications of our practices. Instead, they point

to a fundamental change in the environment for EW acquisition and require a major shift in our approach.

At a gathering of military and industry officials known as President's Day, Rusty Porter, the Past President of the Association of Old Crows summarized the current situation in the following way:

> Collectively, government and industry are losing the battle:
>
> - If we don't show military worth, how can we expect people to buy EW systems? They are not buying them now.
> - During peacetime, decision makers vote for capabilities they can quantify.
> - Government and industry officials and organizations have got to get more proactive on this problem.

The following graphic, from the cover of a recent issue of the Journal of Electronic Defense, indicates the feeling of some members of the EW community.

Figure 1-2. The Threat to EW. We need to radically change the way we do business if we are going to avert a fate of obsolescence and irrelevance.

According to an article in this issue of the Journal of Electronic Defense:

> Maybe the end is near. Maybe budget cuts, the lack of new programs, user apathy and the dwindling industrial base are the four horsemen of the EW apocalypse.

Clearly, if we do nothing to respond to the current situation, the acquisition of EW systems—and the benefit we believe they provide to the warfighter—could become a thing of the past.

The current situation for EW acquisition is described in the following order:

- Inability to quantify military worth
- Lost opportunities
- External factors
- Reasons for hope

1.1.1 Inability to Quantify Military Worth

One reason for the recent problems in EW programs has been our inability to show the contribution of EW systems to mission success. EW systems have traditionally been perceived as an insurance policy or a last line of defense. Their benefit has always been presumed and most decision makers have relied on an intuitive sense that EW systems are worthwhile.

In addition, our recent success in Operation Desert Storm, during which we suffered very little aircraft attrition, has led some to believe that further improvements in EW are unnecessary.

We can no longer rely on this presumed benefit of EW. If we are going to improve our record, we need to prove military worth and state that worth in quantifiable terms. Such terms will allow EW systems to be compared to other system solutions addressing military needs.

Quantifying the military worth of EW systems will provide benefits throughout the acquisition process. According to LtGen Howard Leaf, USAF (Ret), Director Air Force Test and Evaluation, EW acquisition currently has the following weaknesses:

- There are no common or comparable measures of effectiveness for EW systems.
- An institutionalized, disciplined process for the development and upgrade of EW systems does not exist.

- The requirements definition process takes too long and does not tie directly to the needs of the warfighter.

A standard measure of military worth will allow us to overcome these weaknesses. In particular, we need this single measure to work with cost as an independent variable—so that we can assess the trade between cost and performance—and make decisions that produce the best value for the warfighter.

1.1.2 Lost Opportunities

Our difficulty in convincing decision makers of the worth of EW systems continues today, when many of the senior leaders of the DoD possess backgrounds in EW. Even with an audience who might be expected to have a favorable view of the value of EW systems, we are not succeeding in developing and implementing EW solutions. In particular, the following people spent some part of their careers in the EW field:

- Dr. William Perry, Secretary of Defense, was founder and President of the Electromagnetic Systems Lab (ESL), which is a supplier of EW equipment.
- Dr. Paul Kaminski, Under Secretary of Defense for Acquisition and Technology, has a background in defense electronics, including active duty service as the Director of Low Observables Technology for the Air Force and experience with Spectra Enterprise Associates and Delfin Systems.
- Mr. R. Noel Longuemare, Principal Deputy Under Secretary of Defense for Acquisition and Technology, played a leading role in the development of modern radar and avionics systems for airborne and land mobile applications as the General Manager of the Systems and Technology Divisions at Westinghouse Electronic Systems Group.
- Mr. Gil Decker, Assistant Secretary of the Army (Research, Development, and Acquisition), was President of ESL from 1977 to 1982 and headed the New Ventures Department of TRW.
- Mr. Art Money, Assistant Secretary of the Air Force (Acquisition), was Vice President and Deputy General Manager of TRW Avionics and Surveillance Group.

Though much of today's leadership in both acquisition and requirements is familiar with the capabilities of EW systems, we are still not getting our message across to them. Consequently, the EW

systems needed to enhance mission success and protect the warfighter are not being purchased.

1.1.3 External Factors

Other factors contribute to the urgent need to change EW acquisition practices. Most of these external factors are well known and affect everyone who develops and purchases defense systems. The following changes in our environment, for example, have required reforms throughout the defense acquisition community:

- The decreasing defense budget
- The fall of the Soviet Union
- The global proliferation of advanced threats
- The rapid advance of technologies, which are often available on the commercial market
- Acquisition reform initiatives and policies

Combined with the problems that are specific to EW, these factors require us to completely transform our approach to acquiring systems and revise our underlying assumptions about their role in today's military.

1.1.4 Reasons for Hope

Fortunately, we have the ability to correct our course. New development efforts like the Advanced Threat Radar Jammer (ATRJ) and the Integrated Defensive Electronic Countermeasures System (IDECM), provide evidence that we can still make the case for the value of EW systems.

According to a brief delivered by Peter Pappas, Vice President and General Manager of the Countermeasures Division of Sanders, a Lockheed Martin Co., we must accomplish the following to reform EW acquisition:

- Revamp the requirements definition process
- Streamline the Request for Proposal (RFP) and proposal process
- Provide a rigorous discipline for making cost and performance tradeoffs

- Achieve cross-functional integration and government/industry cooperation
- Decrease the EW product cycle time
- Quantify the military worth of EW

We have made progress in each of these areas. One of the goals of the Partnership Process is to consolidate these advances and redesign EW acquisition to consistently employ the best practices. When we do things the right way, we can provide cost-effective and mission-enhancing solutions to the warfighter's needs.

1.2 Our Opportunity for Change

While recent trends indicate a threat to our future, we are also in a time of unprecedented opportunity for change. A commitment to reform throughout the military presents us with an environment in which we can shape our own future. We have been empowered to shape our own destiny, and if we take advantage of this opportunity, we can lead a revolution in the way EW systems are developed and acquired.

According to Mrs. Darleen Druyun, at the time Acting Assistant Secretary of the Air Force (Acquisition), "The old way of doing business is dead and gone." Together, we must create the new way of doing business or we will experience continued setbacks.

In particular, Mrs. Druyun charged the EW community to:

- Create government/industry teams
- Reduce cycle time
- Reduce the amount of specifications

This report details how we have worked to reform EW acquisition and the results we have achieved. In particular, we have:

- Developed a measure of military worth that guides the acquisition process from the identification of a mission need through testing.
- Discovered methods for involving the voice of the warfighter in every stage of acquisition.
- Plotted a faster way through the acquisition process.
- Identified methods for determining the best solution.

This opportunity for change is supported by the senior decision makers in the DoD and, in particular, by leadership throughout the defense acquisition establishment. The changes we have begun extend the guidance provided by the:

- DoD 5000 documents
- SAF/AQ Lightning Bolt initiatives

1.2.1 The DoD 5000 Documents

For more information about the Partnership Process and the DoD 5000 Documents, see Section 2.3.1.

The 1996 revisions to the DoD 5000 series of documents implement many changes intended to streamline our acquisition practices while making them more responsive to warfighter needs. These revisions also provide guidance for how to pursue defense acquisition by employing new principles that promote a "better, faster, cheaper" approach to meeting military requirements. These documents provide us with the framework for our reform of EW acquisition practices.

If we can adapt EW acquisition to implement these principles and establish how EW systems provide military worth, then we can make the EW community a relevant contributor to the future of our military force structure.

1.2.2 The SAF/AQ Lightning Bolt Initiatives

For more information about the Partnership Process and the Lightning Bolt Initiatives, see Section 2.3.2.

In addition to complying with the DoD 5000 documents, which provide guidance for all defense acquisition, the Partnership Process is also in concert with the guidance provided for Air Force acquisition practices.

The Lightning Bolt Initiatives have been the foundation for reform in Air Force acquisition policy and practice. Currently, there are 11 Lightning Bolt Initiatives, and they have already had a major impact on the defense acquisition business. The Partnership extends the spirit of these initiatives and applies their insights to the specific mission area of EW.

In a speech at the beginning of the Partnership Process, Mrs. Druyun asserted:

> The Lightning Bolt Initiatives will help us create a better system together. Since we introduced the Lightning Bolts, there have been some great successes and some foundations laid for future efforts. And the effort we are launching today will also directly affect how we will do business together in the future.

We see our mission and our actions within the context of these initiatives and take seriously Mrs. Druyun's mandate that the Partnership continue to lay the foundation for acquisition reform.

As we discuss the specific application of our ideas, we will indicate how the Partnership Process responds to the Lightning Bolt Initiatives. The lightning bolt logo in the left margin will be used throughout this document to indicate where our ideas correspond to these related reforms.

1.3 The Partnership as the Leader of Reform

The changes instituted by the Partnership, while providing great benefits to the EW community and the warfighter, could also serve as the model for reforming other areas of defense acquisition. We believe that our new insights and methods for EW acquisition can have an impact beyond EW into all areas of Air Force and DoD acquisition.

Again, according to Mrs. Druyun, the Partnership represents:

> . . . a concept for a new way of doing business and I like it. It provides us with a new paradigm for EW acquisition which I think will also translate to all Air Force acquisition.

This report tells the story of how we responded to this unprecedented opportunity to control our destiny. With one eye on our recent setbacks and another on our great potential, we have accepted the challenge offered to us by our leadership. If we all work together, we can transform our culture so that all of us win.