

What Right Looks Like

Comanche First Army Program to Use Analysis of Alternatives (AoA) Methodology

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Comanche was the first Army program to use the new Analysis of Alternatives, or AoA methodology. In a nutshell, this methodology combines cost, effectiveness, programmatics, risk, and item level analysis. The resulting integrated picture is presented to Army and DoD decision makers for system review prior to Milestone II.

As we, the Comanche joint study teams, looked at each other across the conference table, we realized we had never been through anything like this before. In this article, we outline our experiences and the joint study teams' methodology for putting together a successful AoA.

Building the Plan

Since AoAs are integrated efforts, our AoA team looked for something that could roll up commanders' intent and explain the overall direction. To this end, we began by developing and charting an overview or plan describing the AoA effort in time and space (Figure 1).

Our strategic planning team had to assemble all base elements that would provide the analytical underpinnings for system analysis. Figure 1 ultimately became our analytical road map, spelling out the basics, which included: Office of the Secretary of Defense (OSD)/Department of Army (DA) Guidance; Training and Doctrine Command (TRADOC) Study Plan; TRADOC Analysis Center (TRAC) Experimentation and Simulation; and the Army Materiel Systems Analysis Activity (AMSAA) – supported Cost As an Independent Variable (CAIV) and Study Advisory Group (SAG) review.

To buttress the road map, we had to provide our players with a view of the long term (Figure 2). Our team had to understand how the Comanche system affected other systems; to that end, we developed Figure 2 as an illustrative reference and example only.

The road map developed encompassed a range of scenarios designed to place the system in multiple environments, against varied threats, over a variety of missions. Comanche was consequently cast in many settings under wide-ranging conditions. Previous studies selected very few scenarios that highlighted and tested the system of interest (to the extreme). As a result, much time was spent criticizing the scenarios rather than reviewing results. Comanche's plan in-

cluded a spectrum of conflict and across-the-board scenarios.

Although all agencies/principals did not agree with every scenario, there were sufficient scenarios that everyone could find at least one to support. Scenario disagreements were eliminated, and efforts were focused on the system.

We used both high- and low-resolution models and simulation to address Southwest Asia, Northeast Asia, and European Command (EUCOM). To add depth, we provided four alternatives:

ALTERNATIVE 1

The current OH-58D and AH-64D fleet.

ALTERNATIVE 2

A fleet of AH-64D and RAH-66s.

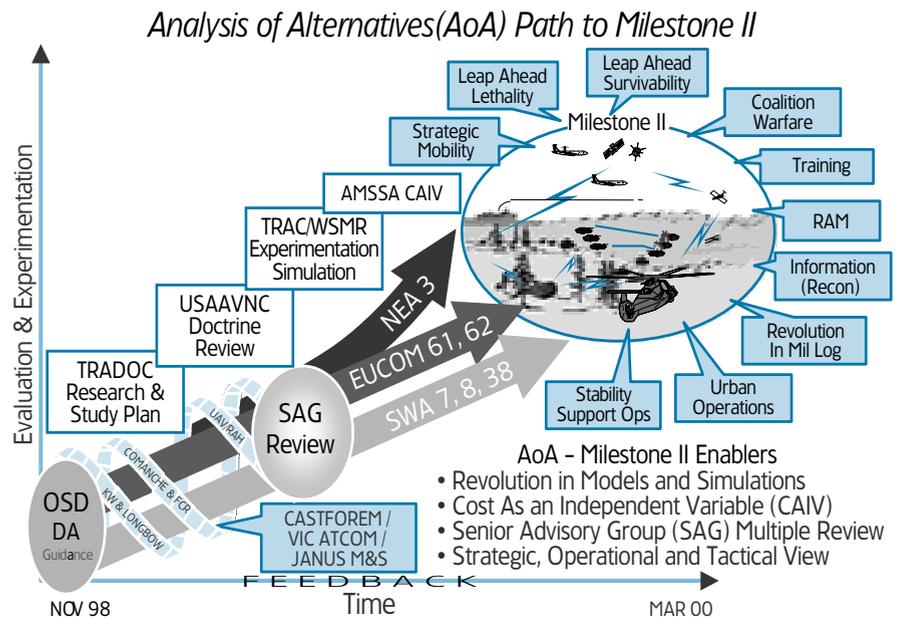


FIGURE 1. Analytical Road Map

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ALTERNATIVE 3

A similar fleet of AH-64D and RAH-66s, but with the RAH-66 degraded in Rada Cross Section (RCS), weight, and increased maintenance burden.

ALTERNATIVE 4

In addition to these three alternatives, a fourth alternative concerning a Comanche and Tactical Unmanned Aerial Vehicles (TUAV) mix was performed independently under the Manned/Unmanned concept exploration project by the Training and Doctrine Command.

The Comanche analysis incorporated multiple techniques for collaboration. An example was the parametric performance analysis and combat models. The parametric analysis compared system performance capabilities (generally key parameters that would show in the combat models) with an explanation of what this might mean in the combat models; then combat model results were provided that were consistent with the parametrics. Each method served to strengthen the results of the other.

Initial key interaction occurred between OSD, DA, the Program Manager (PM), and TRADOC. The group reviewed/developed the Comanche AoA Blue Book and Comanche AoA Reference Document. These sources provided potential alternatives previously considered and helped narrow the field to those of DA and OSD interest. From these documents, we developed a synchronization matrix to ensure all contributors understood their roles, deliverables, and timelines.

Avoiding “We” vs. “They”

The best Strategic Plan is meaningless unless executed by persistent team players (Figure 3).

TRADOC provided an independent agency (TRAC) as study lead for this new AoA process. Nevertheless, in order to execute, the PM shop had to recruit, train, and retain the right personnel. In this regard, we began by finding personnel who knew the ropes and had been through a similar process. We searched the data banks and found several retired cavalrymen who had con-

ducted similar reviews in the late 1980s for Army Gen. John Foss and former Army Chief of Staff Gen. Maxwell Thurman. The “old Cavalrymen” suggested plan improvements and modifications and provided a road map for success. With a clear view of the requirement, we set about recruiting the team.

This new methodology incorporated Army Staff (ARSTAFF)/OSD, and Joint Staff representation throughout the process. Accordingly, OSD Program Analysis and Evaluation (PA&E) led the AoA work group (with members from OSD, Army, and the Joint Staff) and reviewed the analysis. The analysis work was done by the Army, specifically TRAC Leavenworth, TRAC White Sands Missile Range (WSMR), and TRAC-Lee with help from the program office and user involvement from Fort Rucker, Ala. AMSAA provided overall support to the AoA.

An AoA requires tactical/operational and strategic subject matter experts (SME), TRADOC provided SME support from its schools and centers. We found many of these among the TRADOC System Manager (TSM)—Comanche Early Operational Capability unit and in the Directorate of Training Doctrine and Simulation (DOTDS), Fort Rucker. We also recruited SME help from the contractor world, specifically personnel to assist with operational planning and force structure issues at corps, division, brigade, and battalion levels. We called AMSAA for help with CAIV analysis. TRADOC provided combat model and simulation teams from TRAC and the

Air Maneuver Battle Lab (AMBL). We augmented both AMSAA and AMBL model and simulation support with contractors (Boeing, Sikorsky, and others).

Establishing Communications

The Comanche study was conducted on an accelerated schedule, and the initial In Process Reviews can best be characterized as “interesting.” Clearly, we had a disparate group who individually had little stake in the outcome. Establishing clear communications and developing a team were paramount. Collectively, we cured the inherent “we vs. they” issues by insisting on team stability throughout the effort. Our aim was to make each part of the team feel responsible for the whole effort.

In this regard we began a vigorous process of inclusion. The AoA working group met at least once monthly; and the Council of Colonels and the SAG met every six to eight weeks. These groups reviewed progress of the analysis and provided guidance to redirect efforts and resolve problems along the way.

We found that we could not wait for the scheduled meetings to resolve the many “showstopper” issues that cropped up. E-mail messages seemed to breed contempt when relied on exclusively and added an impersonal quality to the problem. We found video teleconferencing useful but not readily available to all parties. During the AMSAA-supported CAIV analysis, we discovered our best means (besides temporary duty [TDY] travel) of keeping the team together turned out to be phone conferences set up for group

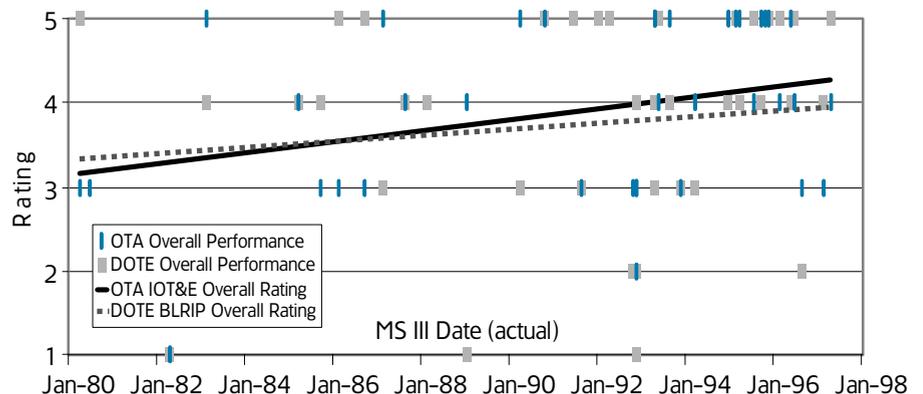


FIGURE 2. EMD Performance Trends (All Programs)

1-800 call-in. This kept things personal and tended to make players accept responsibility for specific actions. Our follow-up and mission execution increased dramatically when we began this effort.

On-site TDY trips were also essential. We had to reallocate funds for travel to ensure the many moving parts of the AoA were synchronized and completed in a timely manner. Frequent reviews, both formal SAG reviews and deskside reviews with all parties (OSD, Army, Joint Staff), were conducted to expose the emerging results and gauge the audience reaction. These reviews were also used to develop formal presentations, and allowed the SAG members to formulate questions for discussion (all parties). Additionally, this process helped scope the analysis. When sufficient information was presented to “scratch the itch,” that particular issue was considered resolved, and the workforce was directed to focus on the other outstanding issues.

Involvement

Frequently scheduled briefings allowed us to bring the ultimate customer (OSD) into the process. Now, rather than being critics of the final product, OSD was involved in development of the product

(the good, the bad, and the ugly) as participants. These meetings helped form a basis for follow-on analysis and allowed us to separate any issues of interest from those not specifically pertinent.

The study director, empowered by the SAG, was the central figure responsible for total product delivery to the SAG. Presentation was orchestrated to present the results of multiple efforts in a coordinated consistent manner, to show a single effort rather than multiple efforts. This required a single ringmaster to understand the divergent efforts, coordinate the efforts, and orchestrate the presentations during the SAGs.

A nonbiased study director assists the AoA by providing “just the facts” and not hype. It’s easier for the audience to accept a “fourfold increase in performance” than “a 400 percent increase in performance.” Some past studies highlighted unique events that were usually driven by the law of small numbers (i.e., 1,800 percent reduction in losses or .2 losses compared to 3.8 losses with only one occurrence). The Comanche results were carefully screened to prevent overstatement of unique events and to qualify results with statistical significance and relative numbers.

Nevertheless, the PM shop had to ensure that the study director received the required data and that all elements of the team were responsive to his needs. When the study director required team member support, the PM shop followed up. Each team member had to justify his or her product to the study director before the SAG reviewed the item. This weeded out a lot of minor issues and ultimately resulted in a positive Assistant Secretary of the Army Review Council (ASARC) and Defense Acquisition Board.

Output

After a year of concentrated effort, study, analysis, and commitment on the part of our team, we developed the following findings, which represent a consensus of all agencies involved in the AoA effort. Operationally, the Comanche alternatives provide an improvement in force effectiveness and survivability in all cases.

- Comanche Alternatives 2 and 3 highlighted earlier in this article, cost about \$10 billion more, the lion’s share of which is the actual production costs of a new aircraft.
- The Comanche force displayed more proactive and deliberate engagements at higher Operational Tempo (OP TEMPO).
- Comanche provided improved detection times and ranges, which allowed many battles to be brought to a decisive conclusion sooner.
- Comanche forces achieved earlier detection at greater ranges permitting more use of artillery, the Multiple Launch Rocket System (MLRS), and other supporting fires.
- Comanche, augmented by TUAVs, reduced the overall blue losses and collateral damage.
- Comanche alternatives had enhanced reliability, availability, and maintainability at lower personnel cost, including the degraded Comanche alternative.

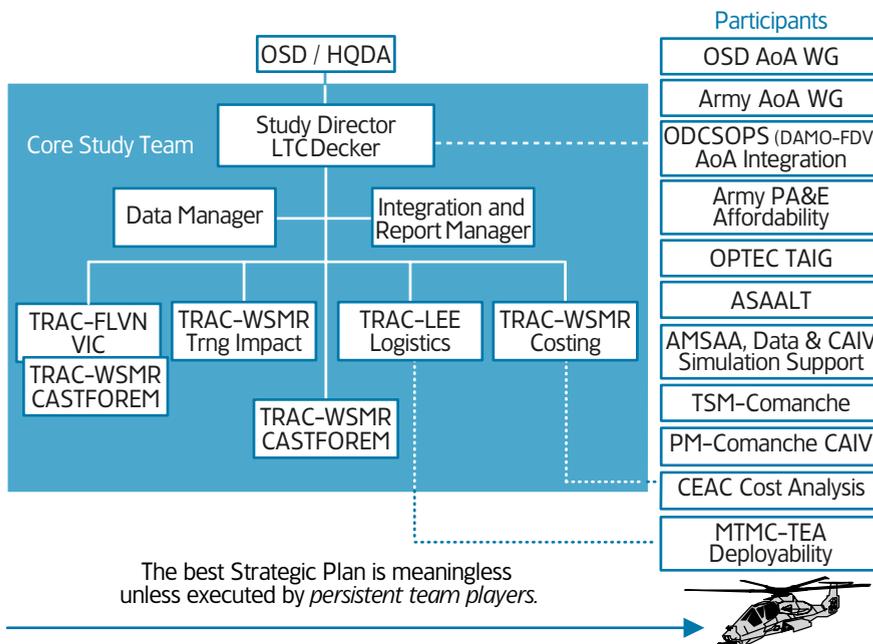


FIGURE 3. Comanche AoA Study Task Organization

Editor’s Note: The author welcomes questions or comments on this article. Contact him at Jimmy.Downs@comanche.redstone.army.mil.