The National Center for Advanced Technologies

Planning of Manufacturing Science and Technology Activities with Industry

Final Report for Office of Naval Research Grant Number N00014-99-1-363 From January 2, 1999 through June 30, 2001

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This Final Report presents a summary overview for activities undertaken by the National Center for Advanced Technologies under Office of Naval Research Grant Number N00014-99-1-0363. On its own behalf and through the Multi-Association Industry Affordability Task Force, NCAT supports activities of the Director of Defense Research and Engineering, the Office of Naval Research, and other DoD and Military Service organizations. These activities have included the areas of defense systems affordability, modular open systems approach (MOSA), defense acquisition reform, technology transition, manufacturing technology, science & technology, and the national munitions production readiness base.

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NCAT

FINAL REPORT

OFFICE OF NAVAL RESEARCH

GRANT NO. N00014-99-1-363

FROM JANUARY 2, 1999 THROUGH JUNE 30, 2001

REPORT NUMBER 01-NG-1A

THE NATIONAL CENTER FOR ADVANCED TECHNOLOGIES
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Executive Summary

National Center for Advanced Technologies (NCAT) activities in support of the Department of Defense were funded through a Grant issued by and administered through the Office of Naval Research (ONR) and are described in this Final Report.

On its own behalf, and through the Multi-Association Industry Affordability Task Force (I-ATF), NCAT supports various activities of the Director of Defense Research and Engineering (DDR&E) and other DoD and Military Service organizations. These activities focus in great part on, but have not been and are not currently restricted to, the broadly defined area of defense affordability. Typically, Industry teams formed under both NCAT and the I-ATF's sponsorship respond or input an "Industry Viewpoint" to Government operational activities.

NCAT acts as the secretariat for the Multi-Association Industry Affordability Task Force, which was created in 1993 to pursue studies in affordability and related areas for the Director of Defense Research and Engineering. The Industry Affordability Task Force is supported with "pro bono" resources from nine Industry Associations and Professional Societies as well as numerous private sector commercial and defense firms. Volunteer Industry/Government teams operate together, under the coordination and facilitation of NCAT, to address areas of concern, especially those related to defense systems affordability, to both Government and Industry.

NCAT's efforts under this grant were primarily in support of the Department of Defense (the Office of the Secretary of Defense and the Military Services) in the areas of:

- S&T Affordability and Technology Transition, including support for the Multi-Association Industry Affordability Task Force; primarily for the Office of the Deputy Under Secretary of Defense (Science and Technology), the DoD Affordability Task Force, and the Defense Systems Affordability Council (DSAC).

- Manufacturing Technology, primarily in support of the Joint Defense Manufacturing Technology Panel (JDMTP).

- The Commercial Operations and Support Savings Initiative (COSSI) and the Dual Use Science and Technology (DUS&T) Program, for the Office of Technology Transition within the Office of the Deputy Under Secretary of Defense (Science and Technology).

- Acquisition Reform, especially with regard to planning and execution of the Program Executive Officers' and Systems Command Commanders' (PEO/SYSCOM) Conferences and Workshops for the Office of the Deputy Under Secretary of Defense for Acquisition Reform.

- Planning and execution of a Naval-Industry R&D Partnership Conference for the Office of Naval Research.

- A study of the National Munitions Production Readiness Base for the United States Amy's Armament Research, Development, and Engineering Center (ARDEC).

- Modular Open Systems, primarily in support of the OSD Open Systems Joint Task Force (OSJTF) under the Director of Defense Research and Engineering.

This Report presents a summary overview for most of the activities covered within. Only the major activities requested/funded under the ONR Grant have been included. The frequent formal and informal interchanges between NCAT and its research analysts and study investigators and the various sponsoring organizations resulted in a multitude of smaller research and support tasks, which were far too voluminous to be detailed in this Final Report.

A notable exception to the above is the inclusion of the minutes of the meetings of the Executive Committee of the Multi-Association Industry Affordability Task Force that took place during the period covered by the Navy Grant. The meeting minutes contain summaries of discussions between senior Government executives and Industry executives on a variety of topics included export controls, intellectual property rights, defense affordability, manufacturing technology, technology transition, defense acquisition reform, modular open systems, dual use science and technology, etc.

Introduction

The National Center for Advanced Technologies (NCAT) was founded as a non-profit research and education foundation to provide a bridge between Government, Industry, and Academia, and to encourage cooperative efforts in the area of technology development. NCAT also acts as the secretariat for the Multi-Association Industry Affordability Task Force. The Task Force was created in 1993 to pursue studies in affordability and related areas for the Director of Defense Research and Engineering (DDR&E). The Industry Affordability Task Force also was selected to act as the "Window to Industry" for the Defense Manufacturing Council (DMC), a high level Office of the Secretary of Defense group (Note: the DMC was renamed the Defense Systems Affordability Council (DSAC) in 1998).

The Industry Affordability Task Force is supported with "pro bono" resources from nine Industry Associations and Professional Societies as well as numerous private sector commercial and defense firms. Volunteer Industry/Government teams operate together, under the coordination and facilitation of NCAT, to address areas of concern, especially those related to defense systems affordability, to both Government and Industry.

On its own behalf, and through the Industry Affordability Task Force, NCAT supports various activities of the Director of Defense Research and Engineering and other DoD and Military Service organizations. These activities focus in great part on, but have not been and are not currently restricted to, the broadly defined area of defense affordability. Typically, Industry teams respond or input an "Industry Viewpoint" to Government operational activities.

In general, a large number of NCAT's research activities are funded through a periodically renewed research grant from the Office of Naval Research. This Grant initially provides no funding to the National Center for Advanced Technologies. Rather, the Grant provides a contracting and administrative vehicle through which Government clients may transfer resources to NCAT in order to fund their desired activities, up to an overall funding "ceiling" on the Grant. This Final Report covers activities funded under Navy Grant Number N00014-99-1-363, *"Planning of Manufacturing Science and Technology Activities with Industry"* which was active during the period January 2, 1999 through June 30, 2001. (Note: This Grant was originally for the period January 2, 1999 through January 31, 2001 but was extended through June 30, 2001.)

For the period January 2, 1999 through June 30, 2001, by the request of the:

- Deputy Under Secretary of Defense for Science and Technology (DUSD S&T),
- Deputy Under Secretary of Defense (Acquisition Reform),
- Office of Naval Research (ONR),

- DoD Open Systems Joint Task Force (OSJTF),
- Joint Defense Manufacturing Technology Panel (JDMTP), and the
- Director of the DoD's Office of Technology Transition (OTT), and the
- U.S. Army Armament Research, Development, and Engineering Center (ARDEC)

the National Center for Advanced Technologies (NCAT) assisted with the planning and implementation of the following programs:

- S&T Affordability, including the conduct of two Government/Industry S&T Affordability Conferences, and two DoD Affordability Program Reviews conducted by the DoD Industry Affordability Task Force and the DoD Office of Technology Transition under the sponsorship of the Director, Defense Research and Engineering.
- Commercial Operations & Support Savings Initiative (COSSI) and the Dual Use Science and Technology Program by planning and executing a Technology Transition Conference ("Technology Transition for the Warfighters") that highlighted the COSSI and DUS&T programs.

NCAT also supported the Defense Systems Affordability Council (DSAC) and the Deputy Under Secretary of Defense (Acquisition Reform) with the implementation of:

- Acquisition Reform activities (primarily the gathering and reporting of feedback from Industry regarding DoD's acquisition reform plans and policies).
- Program Executive Officers' and Systems Command Commanders' (PEO/SYSCOM) Conferences and Workshops (primarily by facilitating the solicitation and participation of Industry attendees, speakers, and panel members/chairs).

NCAT supported the Joint Defense Manufacturing Technology Panel (JDMTP) and its various Sub-Panels as requested including:

- Administration of the nomination and award selection processes for the Defense Manufacturing Excellence Award.
- As the Industry representative to the JDMTP, gathering and providing Industry feedback to and support for the JDMTP as requested.
- Conference planning and execution support for the annual 1999 and 2000 Defense Manufacturing Conferences (DMC).

In addition, NCAT:

- Assisted the Office of Naval Research with the planning and logistics of the 2000 Naval-Industry R&D Partnership Conference.

- Accomplished an analysis of the National Munitions Production Readiness base of behalf of the U.S. Army Armament Research, Development, and Engineering Center (ARDEC).

- Established an Industry Steering Group to provide input on Modular Opens Systems Approach (MOSA) issues to the Director of Defense Research and Engineering's Open Systems Joint Task Force.

As mentioned, the above, NCAT activities in support of the Department of Defense were funded through a Grant issued by and administered through the Office of Naval Research (ONR) and are described in the following sections of this Final Report.

This Final Report is necessarily a summary overview for most of the activities covered within. Only the major activities requested/funded under this ONR Grant have been included. The frequent formal and informal interchanges between NCAT and its research analysts and study investigators and the various sponsoring organizations resulted in a multitude of smaller research and support tasks, which were far too voluminous to be detailed in this Final Report.

Also, with a few exceptions, findings and recommendations made to various study task sponsors are not included in the body of this report. This is a summary report only. Any applicable findings and recommendations have already been reported to the sponsors of each task (and in most cases already implemented). Accordingly, a separate Findings and Recommendations section is not included in this Final Report as it would be unnecessarily repetitious and duplicative of findings and recommendations already reported, in some cases over three years previously.

A notable exception to the above is the inclusion of the minutes of the meetings of the Executive Committee of the Multi-Association Industry Affordability Task Force that took place during the period covered by the Navy Grant. The meeting minutes contain summaries of discussions between senior Government executives and Industry executives on a variety of topics included export controls, intellectual property rights, defense affordability, manufacturing technology, technology transition, defense acquisition reform, modular open systems, dual use science and technology, etc. A variety of informal advice, feedback, and recommendations to the Government from the members of the Executive Committee are fully documented in Appendix B of this Final Report.

Many of the major activities covered in this Final Report have been documented and/or reported on elsewhere through individual reports and presentations as required by the sponsoring organization(s) that provided the funding. Where applicable, these other reports/presentations are noted and incorporated by reference in this Final Report. They may be obtained from NCAT or the sponsoring organization by request (subject to any restrictions on distribution/access placed by the sponsoring organization of each study).

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NCAT Activities Under Grant

Overview

NCAT's efforts under this grant were primarily in support of the Department of Defense (the Office of the Secretary of Defense and the Military Services) in the areas of:

- S&T Affordability and Technology Transition, including support for the Multi-Association Industry Affordability Task Force; primarily for the Office of the Deputy Under Secretary of Defense (Science and Technology), the DoD Affordability Task Force, and the Defense Systems Affordability Council (DSAC).

- Manufacturing Technology, primarily in support of the Joint Defense Manufacturing Technology Panel (JDMTP).

- The Commercial Operations and Support Savings Initiative (COSSI) and the Dual Use Science and Technology (DUS&T) Program, for the Office of Technology Transition within the Office of the Deputy Under Secretary of Defense (Science and Technology).

- Acquisition Reform, especially with regard to planning and execution of the Program Executive Officers' and Systems Command Commanders' Conferences and Workshops (Office of the Deputy Under Secretary of Defense for Acquisition Reform).

- Planning and execution of a Naval-Industry R&D Partnership Conference for the Office of Naval Research.

- A study of the National Munitions Production Readiness Base for the United States Amy's Armament Research, Development, and Engineering Center (ARDEC).

- Modular Open Systems, primarily in support of the OSD Open Systems Joint Task Force (OSJTF) under the Director of Defense Research and Engineering (DDR&E).

S&T Affordability

In general, NCAT conducted all of its support for DoD Affordability and Transition programs during the period January 1999 – June 2001, specifically, for the DoD Office of Technology Transition, under this grant. This included:

- Support for the Fall 1999 and Spring 2001 S&T Affordability Conferences,

- Support for the 1999, 2000, and 2001 S&T Affordability Program Reviews,

- Providing a secretariat function for the Multi-Association Industry Affordability Task Force (first established in 1994 at the request of the Principal Deputy Under Secretary of Defense for Acquisition and Technology), and
- Participating in the DoD Industry Affordability Task Force as the Industry representative.

These S&T Affordability activities and issues are covered in the following sections:

S&T Affordability Conference for 1999

In compliance with the request of the Deputy Under Secretary of Defense for Science and Technology (DUSD/S&T), NCAT planned and facilitated the S&T Affordability Conference that took place October 25-26, 1999 at the Marriott Crystal Gateway Hotel, Arlington, Virginia. The key objective of this conference was to improve the DoD's focus on affordability in order to achieve a balanced approach between cost reduction and performance in advanced technology development programs. This 1999 conference focused on the process for transitioning the results of science and technology to the next phase of acquisition.

NCAT advertised the Affordability Conference (the third in a continuing series) to potential Industry participants, selected the venue (meeting facilities, catering, audio-visual, etc.), and solicited/provided substantial Industry participation in the form of a limited number of invited attendees and several of the invited program speakers from Industry. NCAT also administered and managed the entire conference from start to finish under the oversight of the DoD Office of Technology Transition (OTT).

As a result of survey comments from the previous (1998) S&T Affordability Workshop, a pre-conference training session was included for the afternoon of October 25, 2001. This provided conference attendees an opportunity to become acquainted with selected affordability training tools. About two-thirds of the Conference attendees self-selected to attend the tutorial sessions. A full-day plenary session followed on October 26.

The plenary session included a variety of distinguished DoD and Industry speakers. Dr. Hans Mark, the Director of Defense Research and Engineering and Dr. Michael Griffin, Executive Vice President and Chief Technical Officer for Orbital Science Corporation, served as the Government and Industry keynote speakers, respectively. Additional presentations were targeted to enhance the Conference attendees' awareness of transition issues, including a Best Transition Practices Panel that provided examples of how DoD S&T and weapon system program managers can and should interact to transition technology, presentations from Industry and General Accounting Office representatives that provided their respective perspectives on transferring technology, and a Conference Capstone Panel composed of the three Service Acquisition Executives. The Conference attendees particularly responded to the opportunity to interact with the three Service Acquisition Executives in a non-attribution environment.

About 180 persons from both the S&T and Acquisition communities in Industry, the Office of the Secretary of Defense, and the Military Services were able to attend the Conference. The sponsors of the Conference decided against having any Government or Industry displays or exhibits. It was decided that this policy would be reexamined for future S&T Affordability Conferences.

Feedback from the Conference attendees was solicited through a Conference evaluation form. Ratings for the Conference were similar to but slightly higher than an equivalent S&T Affordability Conference held in 1998. However, the individual written comments regarding the 1999 conference, taken as a whole, were improved substantially over those from the 1998 event (which were themselves very good). The conference event receiving the highest ratings and the most favorable comments was the Service Acquisition Executives' (SAE) Panel, which had been structured as the capstone event for the Conference.

In general, Conference feedback indicated that what the Conference attendees liked the most were the:

(1) Opportunity to hear from top DoD Executives,

(2) Service Acquisition Executives' Panel,

(3) Best Technology Transition Practices presentations, and

(4) Excellent conference venue and catering.

The pre-conference sets of tutorials that were offered were rated as good but not outstanding by the attendees as a whole.

Suggested improvements culled from the feedback questionnaires provided by the Conference attendees included:

(1) Having more Industry participation (both in the audience and as presenters),

(2) More opportunity to participate in question and answer sessions,

(3) A chance to attend more than one tutorial session, and

(4) The chance to hear more about technology transition lessons learned

The bottom line for this 1999 S&T Affordability Conference was that it received much the same overall ratings (met or more than met expectations of attendees) as the previous year but that it had almost no overall "low" ratings (i.e., did not meet expectations) from any attendees. Almost all of the written comments submitted were extremely positive regarding the conduct of the conference and the conference venue. These findings were presented to the Office of Technology Transition and the DoD Affordability Task Force in the Spring of 2000 with a recommendation that the next S&T Affordability Conference should:

(1) Not include tutorials,

(2) Have Industry participation increased to 40-50 percent from the current 10 percent,

(3) Retain and even strengthen the portions of the Conference receiving the most favorable comments (high level panels, more lessons learned, etc.),

(4) Last one-and-a-half days,

(5) Include more time for Q&A,

(6) Incorporate more interactive Panel sessions.

These recommendations were accepted and included in the planning guidance for the following S&T Affordability Conference (held in March, 2001).

The Agenda for this 1999 S&T Affordability Conference is included at Appendix C. The Conference Proceedings from this event were published and distributed electronically. The Conference Proceedings were made available electronically in downloadable form on the NCAT Internet website (http//www. ncat.com).

S&T Affordability Conference for 2001

This Conference took place March 12-13, 2001 at the Fairview Park Marriott Hotel, Falls Church, Virginia, and was sponsored by the Deputy Under Secretary of Defense for Science and Technology. The Conference theme was "Technology Transition for Affordability" and it was the fourth such conference since the first one was held in 1996. The overall objective for this Conference was to share best practices learned from S&T transition activities, and garner the views of senior Industry and DoD executives on what works, what doesn't work, and possible actions needed to improve the transition process. Specifically, this Conference was structured to provide a forum to better understand:

- The best practices for transition of technology to the next phase of acquisition as viewed by integrated product team (IPT) members of selected S&T Affordability Programs.

- The views of senior Government acquisition, Academia, and Industry representatives on the importance of technology transition for affordability.

- The role of the S&T community in evolutionary acquisition and the new DoD 5000 that will foster increased connectivity between the S&T, acquisition, and user communities.

- The experience of representatives from Commercial Industry working on "leading edge" technologies with regard to the transition of technology into product applications.

- The opinions of Government research and development (R&D) laboratory managers regarding how effectively and efficiently technology is transitioning from S&T to the

weapon system acquisition and product support environment and what can be done to improve the situation.

- Affordability and transition issues from the viewpoint of key Service S&T executives and the policies and practices that have been implemented to promote attention to these issues

This Conference was intended to reach out to a broad segment of the S&T, Acquisition, and Industrial communities regarding the issues related to affordability and transition of technology, especially commercial technology, into military systems. It succeeded in this goal, based on Conference attendance demographics. It was originally anticipated that about 300 mid and upper-level DoD and industry managers would participate (compared with about 180 persons, mainly from DoD, at the previous S&T Affordability Conference in October of 1999). Counting speakers and panel members, the final attendance count was well over 320 attendees. Industry and Academia provided just over half of the total attendees, with those from DoD comprising most of the rest.

The Agenda for this 2001 Affordability Conference is included at Appendix C. The Conference Proceedings from this event were published and distributed electronically. The Conference Proceedings were made available electronically in downloadable form on the NCAT Internet website (http//www. ncat.com).

As in 1999, NCAT advertised the S&T Affordability Conference to potential Industry participants. A key difference between this Conference and the 1999 event was that Industry was intended to make up a much greater portion of the attendees (50 percent versus 10 percent) than in previous conferences of this type. NCAT also selected the venue (meeting facilities, catering, audiovisual, etc.) and solicited/provided Industry participation in the form of a large number of Industry attendees and program participants (speakers, etc.). NCAT's Chairman, The Honorable John W. Douglass, served as the Industry keynote speaker. Because Mr. Douglass also serves as the President and Chief Executive Officer of the Aerospace Industries Association (AIA), NCAT was able to use the good offices of AIA to "market" this 4th S&T Affordability e Conference to the leadership of the Aerospace industry. This helped attract a large number of Industry executives as Conference attendees.

NCAT also developed background and other preparatory materials for most of the speakers and the discussion panel participants. In particular, NCAT prepared discussion questions and issue papers in this regard for the use of panel chairpersons. NCAT also managed the discussion and question and answer sessions at the Conference by screening and consolidating questions submitted by the audience and then providing the processed information to the various Panel Chairs and other Speakers on a television monitor.

The Conference lasted one-and-a-half-days and included a large number of distinguished DoD and Industry speakers. As mentioned, the President of the Aerospace Industries Association, the Honorable John W. Douglass served as the Industry keynote speaker, giving an Industry view of Affordability and Transition. His presentation was extremely well received, with Mr. Douglass receiving the best ratings of any of the Conference speakers (according to the post-conference survey). The second ranked speaker, Dr.

Dimitri Mavris, Associate Professor & Director, Aerospace Systems Design Laboratory, Georgia Institute of Technology, was also recruited by NCAT and served as the Academia Keynote. Other presentations highlighted S&T's role in Evolutionary Acquisition in the light of the new DoD Acquisition system and a Government customer's perspective of Technology Transition and Affordability.

In additional to the many panel presentations and discussions, there were also several very well-received discussion panels on the Conference program, including:

- Three Panels showcasing U.S. Army, Navy, and Air Force S&T Affordability Best Practices,

- A Panel comprising all of the Service Science and Technology Executives, chaired by Dr. Delores M. Etter, the Acting Director of Defense Research and Engineering,

- The Commercial Industry Transition Processes Panel, an all-Industry panel which highlighted the transition practices of Commercial Industry compared to those of the Defense Industry and the DoD (this received the best ranking of any of the Panels in the Conference surveys), and

- A DoD "R&D View of Affordability" Panel, which offered three high ranking members of the Military Services' R&D community an opportunity to provide their views regarding technology transition and affordability from the "technology customer's viewpoint" (this Panel received the second highest panel rating).

Another highlight of the Conference was the presentation of the first annual "S&T Transition for Affordability Achievement Award." This award (which included a monetary award to the Government participants) was presented to Army's Guided Multiple Launch Rocket System (MLRS) Advanced Technology Demonstration (ATD) Team by Dr. Delores M. Etter, Acting Director of Defense Research and Engineering. A second feature of this Conference that was new compared to previous years was the presence of Government and Industry exhibits (this was in response to feedback from attendees at the 1999 Conference).

As in the previous S&T Affordability Conferences and Workshops, feedback was solicited from all attendees via a conference evaluation form. Over 100 of the attendees (about a third) filled out the Conference Survey Questionnaire. Ratings substantially exceeded those for the 1999 event (which in itself had excellent ratings). Most of the attendees felt the Conference more than matched their expectations. Less than two percent of the attendees indicated the conference did not meet their expectations.

What the Conference attendees liked best were:

(1) The chance to hear Industry perspectives on technology transition and affordability,

(2) The outstanding Conference administration and venue (a repeat from the 1999 Conference),

(3) Hearing about the combined Industry and Academia contributions to, and different techniques for, accomplishing technology transition and affordability (great insights in areas where the Government has sometimes failed to show understanding), and

(4) The large set of interesting and articulate speakers who were kept to a schedule.

The bottom line for this Conference was that the Conference as a whole and each individual presentation were rated higher than in the equivalent 1999 event. Attendance was up 55 percent. Less than two percent of the 300 attendees indicated the Conference did not fully meet their expectations. The Conference received over twice as many "exceeded expectations" ratings as "met expectations," indicating an extremely successful event. The sponsor of the Conference indicated a high level of satisfaction with the Conference agenda, venue, presentations, administration, planning, and execution.

The Conference attendees had some suggestions for improvement including:

(1) A reduction in repetition with regard to the three Service Best Practices presentations—too many of these presentations seemed to sound alike.

(2) There were problems with the sound system on the first day (corrected overnight.

(3) Have more exhibits (Government and Industry).

(4) Establish a baseline definition of "DoD Affordability" and present it upfront so participants will have a standard metric against which to evaluate ideas presented at the Conference.

(5) There should be even more Government and Industry exhibits.

These recommendations for improvement will be presented to and considered by the members of the DoD Affordability Task Force (the immediate DoD oversight group for the planned 2002 Conference).

DoD Affordability Program Reviews

NCAT facilitated the conduct of two DoD Affordability Program Reviews, in 2000 and 2001. These Program Reviews were primarily DoD sponsored in that all of the presenters were DoD and Military Service S&T program managers and most of the program evaluators were DoD and Military Service personnel, primarily from the DoD Affordability Task Force. Each Program Manager presented a "snap shot" of their program and how the program was employing the tenets of Integrated Product and

Process Development (IPPD) and how affordability principles were being effectively employed.

After each presentation the program evaluators asked questions of the Service Program Manager, shared their perceptions of the program (after the Program Manager had been excused) with the other members of the DoD Affordability Task Force, and then rated the program's adherence to basic affordability principles, including the use of IPPD.

In order to obtain a senior Industry/Academia perspective on these affordability programs and issues, NCAT suggested that it solicit and facilitate the participation of a limited number of senior Industry executives and distinguished experts from Academia in the evaluation process. These executives participated on a "pro bono" basis and executed non-disclosure agreements to avoid any appearance of conflict-of-interest. The members of the DoD Affordability Task Force rated the participation of and the feedback from these Industry and Academia participants as "extremely valuable."

In addition to arranging for the participation in the DoD's Affordability Reviews of senior Industry/Academia representatives with experience in both commercial and defense sectors, NCAT also facilitated the conduct of the Affordability Program reviews by arranging for a venue in which to conduct the reviews and provided administrative support. NCAT executives also participated in the DoD Affordability Reviews and provided feedback to the other (DoD) reviewers.

The results of the affordability program reviews were compiled for each briefed S&T program and Service and provided to the S&T Executives for each Military Service. These results are not maintained by NCAT; however, they may be obtained from the Secretary of the DoD Affordability Task Force through the DoD Office of Technology Transition (within the Office of the Deputy Under Secretary of Defense for Science and Technology).

Multi-Association Industry Affordability Task Force

During the period covered by this Final Report, NCAT supported the activities of the Multi-Association Industry Affordability Task Force by acting as the Secretariat of the Task Force and sponsoring/facilitating the activities of the Task Force's Executive Committee and its associated standing and ad hoc Industry Teams and Working Groups. The Executive Committee of the Industry Affordability Task Force met three to four times per year to exercise its oversight of the activities of the various standing action teams and ad hoc teams of the Task Force, receive reports from Team Chairpersons, receive presentations from various high-level Government executives, provide feedback to Government presenters and executives, etc.

The Industry Affordability Task Force was formed in 1993 in response to the Affordability Thrust of the Director, Defense Research and Engineering. The report Technology for Affordability was a product of the 1993 Task Force. This report first

defined Integrated Product and Process Design (IPPD) along with the required transitions to an integrated process with higher quality and reduced cycle time and cost. This effort in turn evolved into the current Multi-Association Industry Affordability Task Force. This Industry Task Force is the counterpart to the DoD Affordability Task Force. It is a broad-based coalition of Industry leaders committed to maintaining the national security of the United States within the context of reduced spending and through collaborative activities. The purpose of the Task Force is to develop, communicate, and advocate focused Industry input to the Department of Defense on a variety of issues and subjects.

The Task Force focuses on Industry and Government actions that will accelerate the integration and use of commercial technologies to achieve national defense needs at affordable costs. It provides an "Industry Window" for Government Agencies, especially the Department of Defense and the Military Services, to receive direct feedback, unfiltered by any Industry advocacy/lobbying role—on any subject related to defense affordability (S&T, open systems, ManTech, sustainment, etc.). The Task Force also creates and facilitates Industry/Government team efforts in support of S&T affordability and other issues.

The record of the Multi-Association Industry Affordability task Force is one of helping the Department of Defense leverage acquisition reform with Industry. Is has highlighted and worked many affordability issues. In fact, the Task Force has taken on many issues (e.g., evolutionary acquisition, COSSI, dual use, sustainment, reduced total ownership cost, manufacturing technology, etc.) that have advanced the Department of Defense down the road towards acquisition reform. The expertise and potential for candid advice/feedback available through the Multi-Association Industry Affordability Task Force cannot be duplicated elsewhere—especially not on an Industry "pro bono" participation basis.

The current membership of the Executive Committee is provided in Appendix A of this Final Report. Agendas and detailed minutes for most of the meetings of the Industry Affordability Task Force Executive Committee over the period covered by this Final Report are provided at Appendix B. These minutes reflect the Task Force's considered input into areas requested by various DoD offices and executives and represent only a sample of the activities with which the Task Force has been involved with and persons to whom it provided Industry's input over the period of the Grant. These areas included:

- Defense Acquisition Reform, and in particular, the new DoD 5000 series of systems acquisition regulations and policies;

- DoD's Defense Production Act Title III, Manufacturing Technology, Commercial Operations and Support Savings Initiative, and Dual Use Science and Technology Programs,

- Industry's and DoD's concerns regarding the transition of the United Kingdom's Defense Evaluation and Research Agency (DERA) into a quasi-public corporation,

- Simulation Based Acquisition,

- DoD's evolving Joint Technical Architecture (JTA),
- Defense Interoperability,
- S&T Affordability and the overall Defense S&T Program, and
- Implementation of IPPD principles and practices within the DoD, particularly with reference to Defense S&T and Manufacturing Programs.

In general, the areas noted above do not include those funded by organizations or activities that did not provide funding under this Grant. Such activities, although reviewed by and under the cognizance of and/or sponsorship of the Multi-Association Industry Affordability Task Force, are covered in other documentation (contact NCAT at ncat@ncat.com for specifics).

DoD Affordability Task Force

A primary input to the DoD Affordability Task Force was NCAT's assistance to and participation in the Affordability Program reviews previously described above. Other NCAT activities in support of the DoD Affordability Task Force included soliciting, synthesizing, and providing consolidated Industry review and comments for:

- The DoD Affordability Handbook, "Addressing Affordability in Defense Science and Technology: A Handbook for S&T Management" (1999) and
- The DoD Affordability guide, "Technology Transition for Affordability: A Guide for S&T Program Managers" (2001).

The S&T Affordability Guide was developed at the direction of the Deputy Under Secretary of Defense (Science and Technology) to lay out options, instruments, and programs available to enable effective and timely technology transition. It was coordinated with the Service and Defense Agency S&T Executives and other offices within the Office of the Secretary of Defense and received wide endorsement across the Department of Defense.

The Affordability Handbook was coordinated with the Service and Defense Agency representatives to the DoD Affordability Task Force and within the Office of the Deputy Under Secretary of Defense (Science and Technology).

Having DoD's S&T Managers follow the guidance contained within the Handbook and the Guide is encouraged but the publication is not directive. Both of these documents were generated at the request of and followed the advice of the members of the DoD Affordability Task Force, based on a consensus that guidelines and strategies were needed for the use of DoD S&T Managers and Industry S&T Managers in order to improve affordability and transition of late-stage S&T programs, particularly Advanced Technology Development Programs (ATDs), Advanced Concept Technology

Demonstration Programs (ACTDs), and other 6.3 Advanced Development S&T programs.

During the period covered by the Final Report NCAT also participated in the meetings of the DoD Affordability Task Force (these meetings were held approximately quarterly). NCAT solicited, synthesized, and reported on Industry responses to issues raised by the Do ATF members and attended all meetings as the representative of Industry as a whole.

Defense Acquisition Reform

PEO/SYSCOM Commanders' Conference Support

During the period of this Grant the National Center for Advanced Technologies became deeply involved in the planning and execution of the Program Executive Officer's (PEO) and Systems Command (SYSCOM) Commanders' Conference. This occurred when the Office of the Deputy Under Secretary of Defense (Acquisition Reform) requested NCAT provide planning and other support for the PEO/SYSCOM Commanders' Conference and other Defense Acquisition Reform activities as needed.

The PEO/SYSCOM Commanders' Conference is held twice per year (Spring and Fall) at the Defense Systems Management College (DSMC) campus at Fort Belvoir, Virginia. The Conference usually lasts three days. This is a high level "by invitation only" DoD gathering to which Industry has only recently been invited on a regular and substantive basis. At this conference the Undersecretary of Defense (Acquisition, Technology, and Logistics) and his senior executive staff (assorted Deputy Undersecretaries and Deputy Assistant Secretaries of Defense, etc.) get together with a wide range of DoD acquisition program managers (Colonels and one-two star Generals/Admirals and their civilian equivalents), Program Executive Officers (PEOs) who manage groups of defense acquisition programs (one-two Generals/Admirals and their civilian equivalents), and Systems Command Commanders (three-four star officers). In general, the Under Secretary provides information, guidance, and direction down; all others provide feedback, problems, concerns, and information up.

Starting in 1999, Industry has been invited to send senior representatives (Program Managers, General Managers, VPs, Exec VPs, sometimes CEOs and Presidents) that are the equivalents of the Government program managers and PEOs, SYSCOM Commanders, senior Military Service and OSD staff attendees (with a heavy emphasis on Industry program managers and PEO equivalents preferred by the Conference sponsors). Total attendance is about 400 persons with about 60-70 from industry. The Conference is noted for its emphasis on frank and unfettered discussion/feedback between the high level participants. The Spring gathering is usually a combined Workshop/Conference and the Fall session is pure conference (all plenary sessions).

Starting in 1999 NCAT has been tasked to assist the Office of the Undersecretary of Defense (Acquisition, Technology, and Logistics) in planning and executing the

Conference. In particular, NCAT solicits and invites Industry attendees, arranges for Industry speakers and Panel members for the plenary sessions, and serves as the Industry representative on the Conference planning team. NCAT also issues the invitations to all of the 65-70 Industry attendees. The Conference sponsor desires that NCAT obtain a balanced Industry attendance (large and small defense industry firms, prime contractors and suppliers, service and manufacturing companies, logistics support versus new manufacturing companies, research and production industrial communities, Industry Associations, etc.) NCAT is able to do this in part because of its position as the Secretariat for the Department of Defense-sponsored Multi-Association Industry Affordability Task Force.

PEO/SYSCOM 1999

In early 1999 NCAT was requested to arrange for appropriate (management level and expertise) Industry representation to the Spring PEO/SYSCOM Commanders Conference and Workshop. The number of Industry attendees requested by the sponsors of the PEO/SYSCOM event was very limited (10-15 persons only). NCAT was brought onto the Conference planning team in order to provide Industry input into the process of selecting what topics would be best for the planned Conference Workshops and to ensure an "Industry voice" was available during the planning process. The purpose of this workshop structure was to introduce the implementation concepts and tasks defined in the report of the Department of Defense Product Support Reengineering Team, "Product Support for the 21st Century," to DoD acquisition field units, solicit their feedback, and begin the road to institutionalization. It was thought important, since the report was based in part on the manner in which Industry performed product support, that Industry participate. There were six workshop breakout sessions at the Spring 1999 Conference:

- Transitioning to Competitively Sourced Product Support Strategies. This breakout group provided a forum for discussing and obtaining feedback on the issues surrounding the implementation of weapon system oriented competitive product support.

- Integrating Logistics Chains. This breakout group was tasked to develop a working definition of integrated logistics chains that fitted the DoD environment, identify the preferred DoD end-state, identify major impediments, and develop required implementation actions.

- Maintaining and Expanding the Product Support Competitive Base. This breakout group was designed to explore existing barriers to broader participation in the DoD product support market and identify actions to overcome those barriers.

- Implementing Win-Win Public/Private Product Support Relationships. This breakout group was intended to develop a common understanding of the partnership concept, examine the DoD and commercial motives and risks applicable to long term total product support relationships. It identified high-payoff opportunities for partnerships

with the commercial sector, identified impediments and enablers as well as the pros and cons of proposed new approaches, and determined key implementation actions.

- Establishing PM Oversight of Life-Cycle Support. This breakout group provided a forum for discussing the Section 912 Program Manager Oversight of Life Cycle Support (PMOLCS) management actions including implementation time frames, expected results, enablers and inhibitors, and anticipated positive and negative externalities.

- Improving Reliability, Maintainability, And Sustainability Through Continuous Technology Refreshment (CTR). This breakout group looked at the CTR contribution to reduction of total ownership cost (R-TOC), articulated alternative approaches to CTR under both traditional and competitive prime vendor support relationships, listed the key impediments, and developed a near-term action roadmap.

The breakout sessions were deliberately planned to be interdependent rather than independent. These sessions should be thought of as having provided different views of a common subject area rather than addressing stand-alone topics. NCAT provided about a dozen Industry participants—enough to ensure that each breakout session had one or more Industry representatives.

The Conference feedback questionnaires indicated that the addition of Industry representatives to the PEO/SYSCOM attendee mix was much appreciated by the Government attendees. Therefore, the percentage of Industry attendees was increased to about 20 percent for future PEO/SYSCOM Conferences and NCAT was designated as the Industry representative to the standing Conference planning committee.

For the Fall 1999 PEO/SYSCOM Conference NCAT was tasked to provide a large increase in Industry attendees and also provide Industry participants for the Conference plenary program itself. Also, at the conference it was planned to have five separate sessions to show that show perspectives on acquisition reform from five different communities—Industry, logistics, PEOs, Program Managers, and Service Systems Commands. These sessions were designed to:

(1) Disseminate lessons learned by sharing "what's really working well in acquisition reform,"

(2) Identify areas "where reforms may be coming up short," and

(3) Generate, with the audience, concrete steps to pick up the pace of reform for the above shortfalls.

NCAT was requested to support this three-and-a-half hour session on "Perspectives on 'What is Working' and 'What is Not Working'" by arranging for and facilitating the presentation of an Industry speaker. This would be one of five speakers (Industry, the three Military Services, and Comptroller) that made up the session. Specifically, NCAT was tasked to identify a high-level Industry representative who would be willing to

develop the presentation based on discussions with his/her counterparts from many of the other companies in the Defense Industry in advance of the Conference. The PEO/SYSCOM Conference organizers indicated that the idea was to work out "concrete steps" for improving defense acquisition reform well before the Conference.

The intent was for the Industry speaker to represent all of the Defense Industry, not just his or her company. Mr. Pete DeMayo, Vice President for Contract Policy at Lockheed-Martin Corporation, was recruited to be the Industry representative to this important PEO/SYSCOM plenary session panel. Areas to be considered included:

- What are the Industry Program Managers telling their top company executives about reforms in their programs?
- What is working well and where are Defense acquisition reforms coming up short?
- How has the Government working relationship with Industry changed? Where are further changes needed? What are they?
- What should the Defense Acquisition Executive do to help lower Total Ownership Cost (TOC) and shorten cycle time? Where are the best opportunities?

In order to ensure that Mr. DeMayo was able to accurately reflect the views of the entire Defense Industry, NCAT recruited an Industry Working Group to provide feedback to the PEO/SYSCOM planning committee and develop a "strawman" presentation and accompanying documentation for Mr. DeMayo's use that would be agreed to by all companies represented. Thus Mr. DeMayo would be able to state that his remarks represented a coordinated Industry position and he was speaking for the Defense Industry as a whole. The Industry Working Group was able to complete its task and provide a fully agreed-to and coordinated presentation to Mr. DeMayo, which he presented at the 1999 Fall PEO/SYSCOM Panel. A copy of the Working Group's report (developed by NCAT) is contained at Appendix D of this Final Report. Proposed actions and the actual results obtained are also annotated in the Working Group's Report

At the PEO/SYSCOM Commanders' Conference each participant spoke for 20-30 minutes and then participated in a panel discussion moderated by Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform). The Panel session in general and the Industry session specifically, were received very well by the Conference attendees.

NCAT was asked to provide Industry representation to an important PEO/SYSCOM panel "Going Commercial on the Battlefield—Implications on Theater Operations." NCAT was able to recruit Major General Charles Fiala, US Army (Retired), Vice President and Chief Operating Officer of Brown and Root Services, Inc. Brown and Root had recently provided extensive support services to U.S. forces in Bosnia. NCAT also arranged for the participation of Vice Admiral William Hancock, United States Navy (Retired). Admiral Hancock was a former Deputy Chief of Naval Operations for Logistics and an officer with

considerable experience in arranging for commercial logistics and sustainment support to both naval and joint military operations.

The participation of General Fiala and Admiral Hancock on the Panel was received extremely well by both the other high-level panel members and the attendees—post conference questionnaires indicated very high ratings and comments indicated the participation of Industry was very important. Accordingly, NCAT was asked to take charge of the evening panel sessions for several subsequent PEO/SYSCOM Conferences.

NCAT also solicited, arranged for, and coordinated the participation of several defense firms in providing manned exhibits for the conference. These firms included The Boeing Company, Lockheed Martin Corporation, Marconi North America, Incorporated (now BAE Systems NA), and Raytheon Systems Company

As mentioned previously, NCAT was also tasked with inviting suitable Industry attendees. NCAT was able to invite over 70 high level Industry representatives to this three-day event. The Conference feedback questionnaires indicated that the presence of Industry representative was much appreciated by the Government attendees. As a result, it was established that Industry would be offered 20 percent of the slots at future PEO/SYSCOM Conferences and also that greater Industry representation/participation in the Conference plenary session events/panels would be sought. NCAT was assigned primary responsibility for all non-Government participation in the twice-annual PEO/SYSCOM events.

NCAT was also tasked to prepare potential discussion and other questions to be used by moderators and others in the question-and-answer portions of the Conference. These could be used to accentuate certain points the Conference sponsors wished to emphasize or be used by session moderators if audience participation flagged. In support of the Fall 1999 PEO/SYSCOM Conference NCAT prepared and submitted over 50 questions and issue papers to the Conference sponsor to support all Conference sessions.

PEO/SYSCOM 2000

For both PEO/SYSCOM events held in 2000, NCAT was tasked to invite Industry attendees. Finding and inviting a sufficient number of Industry invitees to fill the allotted quota for Industry was readily accomplished. However, one of the challenges related to this task was assuring an appropriate "invitation spread" so that no one company or business sector was over or under represented.

Another challenge related to this task was that a balanced invitation list did not necessarily assure a balanced list of attendees. Often an Industry invitee who accepted an invitation to a PEO/SYSCOM Conference was, at the last minute, unable to attend due to the press of business, unexpected program events, or other reasons. Accordingly, a plan had to be implemented whereby the Industry quota was "over-invited." Experience soon

showed that about a 25-30 percent overage had to be used when inviting attendees from Industry in order to ensure that the Industry quota was filled.

A particular effect of having so many Industry invitees be unable to attend at the last minute was that Industry Program Managers and those with similar responsibilities tended to be over-represented among those who accepted invitations and then had to cancel at the last minute due to the press of program events. This led to the Industry Program Manager community being under represented at many of the PEO/SYSCOM Conferences. Since the sponsor (the Office of the Deputy Under Secretary of Defense for Acquisition Reform) was particularly interested in having Industry Program Managers attend, this also led to the Industry Program Manager community being over-represented in the invitation list in order to ensure adequate representation. Another technique was to invite those from Industry with program management experience but who were not currently assigned as a program manager. This technique assured a sufficient representation of the Industry program management community at the Program Executive Officers'/Systems Command Commanders' Conferences.

The Spring 2000 PEO/SYSCOM event was a combined Conference and Workshop (the Conference Agenda is at Appendix D). Planning activities were more intense and lasted longer than in 1999 because of a new Conference feature. In a change to previous PEO/SYSCOM events, a half-day tutorial session was held the day prior to the formal opening of the Conference. The National Center for Advanced Technologies was involved in the planning for and formulating the descriptions of these eight tutorial sessions, which were very well received by the Conference attendees according to the Conference feedback questionnaires.

Industry support for this Conference was relatively high compared to the two PEO/SYSCOM Conference events in 1999. While the Industry attendance quota remained about the same (20 percent of available spaces) participation in the Conference agenda itself increased.

The theme of this Spring Conference was "Integrating Across the Lifecycle—Putting the Pieces Together." The President of the Logistics Management Institute gave the keynote address. Industry presence was heavy in the workshops, with Industry co-chairing several of the Workshop Breakout Groups (Speeding Technology Transition, Competitive Product Support, and Early Logistics Planning). Industry participation was welcome and very evident in all breakout groups. However, it was the heaviest in the three sessions co-chaired by Industry and also in the Tangled Sustainment Responsibility session. Each Breakout Group met for most of one day, hearing presentations and formulating actionable recommendations for the brief out to the DoD acquisition leadership the next day.

NCAT was assigned responsibility for a major event at the Spring 2000 PEO/SYSCOM Conference, the evening panel: "Commercial Industry Sustainment Processes: Can They Be Applied to Support the Warfighter in Peace *and* War?" NCAT recruited a retired Navy Vice Admiral with extensive logistics experience as the Panel moderator. For the

Panel itself, high level representatives (Vice President level or equivalent) from a commercial shipping line, an aviation services company, a major domestic and international airline, a trucking manufacturer experienced in providing/servicing and operating large trucks for military and commercial customers, and a commercial package world-wide delivery service firm (one with extensive air and ground fleets) were recruited. The Panel was a success and the viewpoints expressed by the Panel members—that Commercial Industry could provide effective sustainment and logistics support for military operations in peace, near-war, and wartime—seemed to resonate with the Conference attendees.

NCAT participated in the planning and execution of a new type of PEO/SYSCOM event in the Fall of 2000. In addition to the "normal" PEO/SYSCOM Conference activities, a DoD Science and Technology Exposition, with many exhibits, was made a part of the PEO/SYSCOM activities. The Conference began as had become normal, with a series of tutorials attended by about two-thirds of the Conference attendees. Industry was well represented among the attendees and the presentations of Implementing Alternative Dispute Resolution, Implementing Performance-based Milestone Payments, and Commercial Practices were particularly well attended.

The afternoon session was devoted mainly (after the Conference Keynote address from the Honorable Jacques S. Gansler, Under Secretary of Defense for Acquisition, Technology, and Logistics) to subjects associated with DoD science and technology, including presentations and/or panel discussions featuring the Science and Technology Executives from the three Military Services as well as the Deputy Under Secretary of Defense (Science and Technology). There was also an evening session featuring many large and sophisticated displays of current Department of Defense and Industry technology programs, which was very well attended. The next day featured a number of speakers and panel sessions but the highlight was the panel of all three Service Acquisition Executives, moderated by the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics).

NCAT was tasked to arrange for the Capstone event of this PEO/SYSCOM Conference. This Capstone Event was a Panel of the Presidents of all of the major Industry Associations associated with DoD (with one exception). These included the Honorable John W. Douglass, President and CEO, Aerospace Industries Association of America; the Honorable David McCurdy, President, Electronic Industries Alliance; Mr. Harris Miller, President, Information Technology Association of America; Lieutenant General Lawrence Skibbie, United States Army (Retired), President, National Defense Industrial Association; and Lieutenant General C. Norman Wood, United States Air Force (Retired), President and CEO, Armed Forces Communications and Electronics Association. The Panel was moderated by the President of the Institute for Defense Analyses, General Larry Welch, United States Air Force (Retired). The one exception noted was the Information Technology Association of America. Mr. Miller was invited to give commercial industry's perspective of the DoD as a customer, especially for research, with respect to DoD participating with Industry in development and fielding of leading edge electronic and information technology products. The theme/title for the

Panel was the "Industry Associations' Perspectives on Defense Acquisition Reform's Achievements and Remaining Challenges."

NCAT prepared position and issue papers for the members of the Panel and also hosted a conference call for the members of the Panel to discuss the issues prior to the Conference. The panel members, all Industry Association "senior statesmen," brought a wealth of experience and a unique viewpoint to the Conference. Since this was the last PEO/SYSCOM event for many of the current set of DoD acquisition policy-makers and executives, the Panel members undertook to provide both a broad-based retrospective/evaluation and a look to the future with regard to defense acquisition "challenges and opportunities." This was a strictly Industry-viewpoint panel, all of whom "told it as they saw it" in expressing their views and their association members' views on such topics as:

- Evaluation of the current state of defense acquisition reform efforts,
- Future defense acquisition reform thrusts needed from their perspective,
- Future technology thrusts (where should emphasis be?),
- What commercial companies think regarding doing business with DoD today (both R&D and production)—Is there any reasonable expectation of realizing Dr. Gansler's expressed need for DoD to tap into the "vast" amount of commercial R&D and spin it on to defense products? (Answer: Not really, unless DoD drastically changes its acquisition system, rules, and procedures, especially with regard to contracting, cost accounting standards, allowable profits, export control restrictions, and intellectual property rights), and
- Outcomes of the recent "Odeen" Defense Science Board (DSB) study on how DoD policies affect Industry for good and/or ill.

A major portion of this panel session was devoted to panel discussion and answering tough and provocative questions from the audience. Each panel member was free to shape their own brief remarks (about 5 minutes) as they saw fit given the audience, their own experience, and the messages they wish to impart. However, in general the Panel members offered their thoughts on the Industry environment in 1990 versus now; and the implications for defense acquisition reform then, now, and in the future. They discussed the business case for acquisition reform given the business environment at the time and the case needed to be made now.

The Industry Association Presidents' Panel provided both an opportunity and a forum to discuss with top DoD acquisition leaders Industry's concerns, including acquisition reform, export control, intellectual property, progress payments, program stability, evolutionary acquisition, etc. NCAT prepared about 20 of the 50 overall questions and issue papers it provided to the Conference organizers for this particular panel session. Conference feedback indicated this panel session was the best received of the entire Conference.

Commercial Operations and Support Savings Initiative and the Dual Use Science and Technology Program

The Office of the Deputy Under Secretary of Defense for Science & Technology (specifically, the Office of Technology Transition), which is responsible for and manages the Commercial Operations ands Support Savings Initiative (COSSI) and the Dual Use Science and Technology (DUS&T) programs requested the assistance and participation of National Center for Advanced Technologies in planning and conducting a "Commercial Technology for the War Fighter" Technology Transition Conference. This conference took place November 8-9, 2000 at the McLean Hilton Hotel in Tyson's Corner, Virginia. The detailed agenda for the "Commercial Technology for the Warfighter" Technology Transition Conference is contained at Appendix C of this Final Report.

The objective of this conference was to discuss why commercial technology is important to the Department of Defense and how in general it can be employed to improve military systems; and specifically, how to improve the transition of commercial R&D results into defense weapon systems. This Technology Transition for the Warfighter Conference was co-hosted by two Department of Defense programs that directly implement this philosophy of Leveraging Commercial Technology—the Commercial Operations and Support Savings Initiative and the Dual Use Science and Technology program. These two programs, representing well over $100 Million of OSD and Service funding for FY 2001 and FY 2002, presented the lessons learned and best practices from past projects and discussed the needs and opportunities for the upcoming year. Additional briefings included the newest activities in acquisition reform, logistics initiatives, and the most exciting new topic: the possible extension of Other Transactions Authority (OTA) to production.

The Conference presented a unique opportunity for Industry and Government to discuss the current status of Department of Defense initiatives for inserting commercial technology into legacy and developmental weapon systems. Among the topics discussed were the ever-growing complex military technology needs and how these could be offset by leveraging commercial R&D within new forms of Government-Industry partnerships. This Conference provided an excellent opportunity for various commercial and defense-oriented firms to learn about DoD's goals and programs in this area.

The first day of this conference consisted of all the Government speakers and Government/Industry keynotes, DUS&T and COSSI Program Best Practices Presentations, etc. The second (half) day involved a special topic plus two non-government panels.

NCAT also organized and convened Industry and Congressional discussion panels for the plenary session as requested by the DUSD (S&T), and OTT, to include:

- "Industry Perspectives" with the Honorable John W. Douglass, President and CEO, Aerospace Industries Association (Moderator).

- "Congressional Perspectives" with Mr. Jon Etherton, Assistant Vice President for Legislative Affairs, Aerospace Industries Association (Moderator).

Approximately 300 Industry and Department of Defense representatives were present at this one-and-a-half day conference. In addition, there were approximately 30 exhibits from various COSSI and DU S&T Program participants.

The detailed comments and ratings of various aspects of this Conference were captured by means of a conference attendee feedback questionnaire distributed to each Conference attendee during registration. Almost half the attendees completed the survey. On a scale of one through five, with "three" meaning "conference met attendee's expectations" the Conference drew an overall rating of 3.8, or essentially, for the average Conference attendee, the individual results experienced substantially exceeded his or her expectations.

The detailed narrative comments submitted by many of the attendees indicated they were very pleased with the overall administration, organization, and conduct of the conference, with the venue and catering receiving particularly high marks.

There were five sub-areas specifically assessed by the conference questionnaire: The Government and Industry Keynotes (rated 3.7), the Dual Use S&T Best Practices Panel and Presentations (rated 3.4), the Commercial Operations and Support Savings Initiative Panel and Presentations (rated 3.4), the Industry Perspectives Panel (rated 3.7), and the Congressional Perspectives Panel (rated 3.3). All of the panels and other Conference events were well received, with the Keynotes and Industry Perspectives Panel receiving the highest ratings. The detailed written comments showed why—these were the Conference events where the participants were perceived as the most straight forward and thought provoking. The only Panel to draw more than a very few negative remarks was the Congressional panel, but it still was rated as having exceeded expectations.

The sponsors of this conference, the Office of Technology Transition, indicated they were extremely pleased with the results of the Conference and the way it was organized and conducted.

Proceedings from this event were published and distributed via the Internet and were made available at NCAT's and the Office of Technology Transition Dual Use Technology websites (www.ncat.com and www.acq.osd.mil/es/dut).

Manufacturing Technology

According to the current Five-Year Plan for the Department of Defense Manufacturing Technology (ManTech) Program, the DoD ManTech program focuses on maturing defense-essential manufacturing technologies to both foster the rapid, low risk transition of advanced technologies into new systems and to also extend the useful life of current military systems. The Department of Defense manages the ManTech Program to achieve

implementation of affordability improvements and reduction of cycle times. It does this through the Office of the Deputy Under Secretary of Defense (Science and Technology) Office of Technology Transition.

Under the guidance and oversight of the Office of Technology Transition, the Joint Defense Manufacturing Technology Panel (JDMTP) translates policy guidance into specific programmatic objectives and ensures the overall DoD investment in ManTech is integrated and coordinated among the Military Services and Defense Agencies. The responsibilities of the JDMTP are accomplished through several Sub Panels in addition to the JDMTP itself.

The National Center for Advanced Technologies has had a long association with the DoD Manufacturing Technology (ManTech) program. In particular, the Center actively supports the activities of DoD's ManTech executive body, the Joint Defense Manufacturing Technology Panel (JDMTP). The National Center for Advanced Technologies (NCAT) was tasked to support the activities of the JDMTP through the conduct of surveys and studies as required, and to facilitate interfaces between Industry, Academia, and the Panel. Because of NCAT's recognized stature and affiliation with many professional and Industry associations it was in an ideal position to carry out this function. Also, NCAT's position as the organizer and secretariat of the Multi-Association Industry Affordability Task Force also provided it additional contacts in both Industry and Academia that aided and complemented its suitability to carry out this task. Over the period of this Grant, NCAT's support in this area was divided over several activities:

- Planning and execution support for the 1999 and 2000 Defense Manufacturing Conferences (DMC) including arranging for the Defense Manufacturing Excellence Award nomination and selection, and facilitating planning and conduct of DMC plenary session activities and speakers.

- Providing an Industry presence within, and two-way Industry communication channel to, the JDMTP as well as conducting Industry surveys for the JDMTP and its Sub Panels. This included:

  - Participation in, and support of, the activities of the JDMTP and its many Sub Panels in an advisory capacity, including soliciting Industry participation in various JDMTP-sponsored activities,

  - Representing Industry's concerns and viewpoints to the JDMTP as required such as in support of ManTech Technology Area Review and Assessments (TARAs). (Note: This advisory role was limited to representing the Industry viewpoint as requested, and did not involve policy planning or resource allocation decisions. Rather, it was intended to provide a source of a balanced Industry perspective and up-to-date Industry information for use during the JDMTP decision process as desired and requested by the Chairman of the JDMTP.), and

- Support for the JDMTP and Sub Panel activities with surveys, critiques of reports and papers and also providing a coordinated consensus (Industry/Academia) viewpoint with regard to new manufacturing products and processes insertion.

During 1999 these tasks were funded partially through the Grant and partially through a separate sub-contract with Anteon Corporation. During 2000 these activities were funded through the Grant only. Work directed towards any or all of the above objectives was accomplished as directed and to the extent required by the Chairman of the JDMTP. The resources employed by NCAT consisted of its own internal analytical, planning, program management, and research assets; as well as the resources of Industry and Academia, in large part accessed and made available through the Multi-Association Industry Affordability Task Force.

Two-way communication and feedback, JDMTP-to-Industry and Industry-to-JDMTP should continue, whatever the method and entities chosen to carry it out, as it has proved very useful to the JDMTP and Industry ManTech participants. All JDMTP principals and Sub Panel chairpersons have found NCAT's two-way feedback channel with its representation of Industry views to and within the JDMTP and its Sub Panels to be very valuable and useful.

Support for Defense Manufacturing Conference Planning/Execution Activities

The National Center for Advanced Technologies (NCAT) supported the Service Components and the Joint Defense Manufacturing Technology Panel (JDMTP) in their Defense Manufacturing Conference (DMC) planning efforts for 1999 and 2000. Support was categorized into:

- Arranging for and administering the nomination, selection, and presentation of the Annual Defense Manufacturing Award. Each year the associations and professional societies affiliated with the Multi-Association Industry Affordability Task Force nominate a person, team, or small group from within the Department of Defense and/or Industry to recognize their contributions to Defense Manufacturing.

- General planning support to the JDMTP/Service DMC planning group to include
  - Assisting with the formation, planning, preparation, and conduct of Industry and other discussion panels at the DMC during plenary and other sessions,
  - Providing question and answer support for DMC plenary and technical sessions as requested. (Note: This included developing questions to enable the Panel chair or moderator to "get started" and screening and consolidating questions submitted by Conference attendees. On request these questions were typed into a computer for display on a large television monitor for the Panel moderator and members of the Panels.),

- Soliciting and representing Industry's participation and viewpoints as required for plenary session speakers and discussion panels (e.g., Industry Keynote speakers), and
- Other DMC preparation and planning tasks as requested.

The 1999 and 2000 Defense Manufacturing Excellence Awards

Since 1995, the National Center for Advanced Technologies (NCAT), acting as the agent for the Associations and Professional Societies involved in the Multi-Association Industry Affordability Task Force, has sought to recognize both an individual and/or a small working group or team in the defense manufacturing community for making outstanding contributions to furthering manufacturing science and technology in the United States for the previous fiscal year. Through the Defense Manufacturing Excellence Award, these Associations and Professional Societies acknowledge and recognize contributions of those Industry and Government scientists, designers, engineers, and/or managers of manufacturing who have sought to conduct research, and develop or practice ways and means to increase productivity, affordability, or technical superiority of the nation's defense systems. This prestigious award is open to anyone in the manufacturing community.

NCAT solicits and selects an Award Nomination and Evaluation Committee and a Chairperson for this Committee. The Nomination Committee consists of representatives from the Industry Associations and Professional Societies that help make up the Multi-Association Industry Affordability Task Force. The Committee helps solicit nominations (through the members of their organizations), which are forwarded directly to NCAT. NCAT in turn sends copies of the nominations to each members of the Committee, who then evaluate the nominees relative to each other, on behalf of their Association/Society. This yields an individual rank order of all of the nominees from each member of the Evaluation Committee. NCAT then compiles the scores (based on the individual relative ranking of the nominees by the members of the Evaluation Committee) as they are received from the members of the Evaluation Committee. After NCAT tallies the scores the Evaluation Committee meets to ratify the selection of the winner(s).

The awards were presented at the Defense Manufacturing Conferences, either during the plenary session (DMC 2000) or at an Awards Luncheon (DMC 1999).

For the year 1999, the Defense Manufacturing Excellence Awards were presented to:

- *Individual Award to Dr. Lance A. Davis.* Dr. Davis served as the Director of the Office of Technology Transition within the Office of the Secretary of Defense. There he made substantial and lasting contributions to furthering manufacturing technology in the Department of Defense and in the United States' industrial base.
- *Team Award to the Harris Corporation GCSD Manufacturing Team.* The Harris GCSD Manufacturing Team was responsible for the development, qualification, and

fabrication of an antenna system that was the most advanced and complex system of its kind ever developed. The manufacturing methods developed to successfully manufacture this extremely complex design resulted in three patents.

For the year 2000 the Defense Manufacturing Excellence Awards were presented to:

- *Individual Award to Mr. James Sinnett.* Mr. Sinnett was Vice President for Strategic Development, The Boeing Company, where he was instrumental in establishing and leading roundtable discussions among DoD and Service representatives and Industry executives and program managers to address the inclusion of manufacturability considerations in DoD's programs. As chairman of the Multi-Association Industry Affordability Task he led the group designated as the Industry interface with DoD's Joint Defense Manufacturing Technology Panel.

- *Team Award to the Boeing Joint Direct Attack Munition (JDAM) Production and Small/Medium Enterprise Initiative (SMEI) Team.* The Boeing JDAM production team transitioned its operations from classical "batch-and-queue" to a continuous demand flow line, enabling Boeing to triple its production rate in two months. The Team drove affordable concepts throughout the JDAM supply base by stimulating process improvements in its smaller suppliers, providing them with common training in lean production techniques, benchmarking visits to the Boeing facility, and onsite support to its JDAM suppliers.

The complete award citations and the text of the nomination packages as well as detailed award nomination and selection procedures are not included in this Final Report and may be obtained through NCAT as needed. Details of the award citations for the winners can be obtained through the DMC Web Site (http://www.dodmantech.com/PUBS/).

General DMC Planning and Support Activities for 1999 and 2000

The JDMTP sponsors the Defense Manufacturing Conference each year. A different Military Service acts the host and is responsible for the Conference planning in a yearly rotation. NCAT, in conjunction with other support contractors and in close coordination with the Military Service representatives and the JDMTP, assisted in planning, organizing and executing the DMC. Under the guidance of the Conference sponsor, NCAT identified specific individuals and programs to help fill out the draft planning Conference agenda. This included working with JDMTP representatives to identify preferred programs and Government/Industry panel members. NCAT conducted face-to-face, phone, e-mail and fax communications with planned participants to explain purposes, expectations, and limitations of the panels' activities, and prepared written questions/issue papers that panelists would be expected to address. NCAT also coordinated evolving question/issue content with panelists, Conference planning team members, and the JDMTP well in advance of the Conference to ensure a most productive and meaningful result from the panels as needed.

DMC 1999. The 1999 DMC was held November 29 to December 2, 1999 at the Fontainebleau Hilton Hotel in Miami, Florida. In support of this conference (hosted by the U.S. Navy) the National Center for Advanced Technologies:

- Participated throughout 1999 in all (weekly or bi-weekly) planning meetings for the Defense Manufacturing Conference either in-person or through teleconference.

- Arranged (by invitation of the DMC Planning Committee) for NCAT's Chairman, the Honorable John W. Douglass (also President and CEO of the Aerospace Industries Association of America) to make a presentation and sit as a member of the Program Manager's Panel at DMC. NCAT prepared his presentation and helped provide preparation materials to Mr. Douglass and the other members of the panel.

- Solicited and provided a distinguished high-level Industry Keynote speaker to help open the first plenary session of the conference. The Industry speaker was Mr. John R. Murphy, President of Bell Helicopter Textron.

- Supported several plenary session discussion panel sessions. The 1999 DMC plenary sessions all featured an opportunity for the conference attendees to submit questions to the members of the various featured panels. In addition to helping prepare the panel members and providing materials, NCAT also supported the audience participation within the question and answer sessions. The questions were collected, collated, and synthesized by NCAT prior to being typed into a laptop computer for display on a television monitor to the panel moderators.

DMC 2000. The 2000 Defense Manufacturing Conference was held November 27-30, 2000, at the Marriott Waterside Hotel, Tampa, Florida. In support of this conference (hosted by the U.S. Air Force) the National Center for Advanced Technologies:

- Participated throughout 2000 in planning meetings for the Defense Manufacturing Conference either in-person or through teleconference. Because the NCAT representative to the planning team was based in the same area where the DMC was to be held, support was enhanced.

- Solicited and arranged for the Industry Keynote speaker, Mr. Stanley R. Arthur, President of Lockheed Missiles and Fire Control. Mr. Arthur's presentation on the Industry Leadership Perspective on the Defense Manufacturing Technology Program was well received.

- Solicited and arranged for the participation of two distinguished Congressional staff members. Ms. Pamela Farrell (Professional Staff Member, Senate Armed Services Committee) and Mr. Jean Reed (Professional Staff Member, House Armed Services Committee) formed a Congressional Perspectives Panel that served as a Capstone event for the second day of the Conference. After offering their candid remarks regarding a Congressional Perspective of the ManTech Program they took many questions from the audience. The Conference attendees received their remarks well

and particularly appreciated the opportunity to participate in a relatively unfettered and candid dialog with the two staffers that had had a great effect on Congressional funding for the Manufacturing Technology Program over many years.

- Supported the Manufacturing Technology Directors' Roundtable by preparing a set of discussion questions for the Panel Moderator, Mr. Dan Cundiff, in advance and also by collecting, screening, and synthesizing a voluminous set of audience questions as they were submitted. The Panel members and in particular the Panel Moderator indicated their satisfaction with the support NCAT provided to this discussion panel.

Support for JDMTP and Sub Panel Activities

NCAT supported the activities of the Joint Defense Manufacturing Technology panel (JDMTP) throughout the period of this Grant. Support for the JDMTP included serving as a "two way" Industry representative to the JDMTP and its Sub Panels as requested, planning and execution for the annual Defense Manufacturing Conferences (reported on above), helping to organize and coordinate informational ManTech exhibit activities to the Congress, and supporting the bi-annual ManTech Technology Area Review and Assessments (TARAs).

1999 JDMTP Support

JDMTP support from NCAT was funded in 1999 both through a contract with Anteon Corporation and through tasks funded through this Navy Grant. This "level of effort" support under the Grant was in part reflected by the following:

- Joint Defense Manufacturing Technology Panel. NCAT participated in Panel & Sub-Panel activities and projects, surveys, critiques of reports, organized and secured the participation of Industry, professional society, and/or Academic expertise to support studies and analyses efforts, arranged meetings in preparation for these studies, coordinated consensus of technologies, products, processes and white papers.
  - NCAT attended the four quarterly meetings of the full JDMTP. At these meetings NCAT represented the views of Industry and then solicited/provided Industry feedback to proposed JDMTP policy changes and new ManTech projects.
  - On request NCAT also received a draft of proposed legislative language (House Armed Services Committee (HASC) and Senate Armed Services Committee) and solicited the comments of Industry. The draft language was provided to the members of the Industry Affordability Task Force for suggestions and changes. Suggested enhancements were given for improvement based on the original language of the statute on which the HASC language was based.
- Sub Panels of the JDMTP. NCAT also supported the activities of the various JDMTP Sub Panels as requested by the Chairpersons of the Sub Panels and/or the JDMTP

Chairperson. Every year each of the Sub Panels within the JDMTP is required to conduct an assessment/review of the projects within its portfolio. This annual assessment is intended to review the progress, jointness, relevancy, duplication, proposed implementation, and other metrics (such as cost, schedule, sharing or leverage being achieved with other programs, transition, etc.) as the membership of the JDMTP considers appropriate. NCAT was tasked to support several Sub Panels in their portfolio reviews (see below).

- JDMTP Sustainment Readiness Sub-Panel. NCAT actively participated in projects or activities of the JDMTP Sustainment Readiness Sub-Panel. The focus was in aging aircraft as it directly affects training and flight capabilities of pilots and aircraft and correlates with the decreasing mission capability rate of the aircraft. The Secretary of Defense requested recommendations on process, policy, and procedural changes to deal with this issue. NCAT attended the meetings of the Sub Panel as needed and actively supported this effort. NCAT also supported the annual technology portfolio review conducted by the Sustainment Sub Panel. NCAT provided representatives to help review and evaluate the various projects being conducted by each Military Services within the Sub Panel's purview

- JDMTP Electronics Sub-Panel. NCAT supported the annual technology portfolio review conducted by the Sustainment Sub Panel. NCAT provided representatives to help review and evaluate the various projects being conducted by each Military Services within the Sub Panel's purview. In addition, to address the needs of the Electronics Processing And Manufacturing (EPM) Sub Panel, it was suggested that the Manufacturing Technology Tri-Service community and the Defense Industry leverage their resources by combining efforts to address critical manufacturing issues necessary to meet the war fighter's needs of affordable weapons systems. It was suggested that to accomplish this, the three Military Services must work in conjunction with each other and together with industry to identify near and far term requirements and identify unfunded shortfalls that are critical to making the manufacturing capability available for weapons systems. In support of this activity NCAT organized and secure the participation of Industry, Professional Society, and Academic expertise to conduct a survey and assessment to identify common areas of concern, develop action plans to address these concerns and secure support/funding to invest in developing the manufacturing technologies necessary.

    - The Electronics Processes and Manufacturing (EPM) Sub Panel of the JDMTP, with support from NCAT, had previously constructed an EPM roadmap for existing unfunded requirements from within the DoD and the Military Services, primarily focused on weapon system development, production and support. The product of this 1998 effort was a list of 41 unfunded requirements, primarily associated with a specific defense system product or product family. NCAT, as a member of this EPM Sub Panel, was asked to provide a view of what unfunded requirements existed in industry. The purpose was to (1) collect information from various electronic companies about currently funded and unfunded EPM requirements and (2) help build a

consensus about the use of corporate roadmaps and willingness to cost share projects with either the Government (keeping in mind the Government's unfunded requirement list) or other companies. This EPM study by NCAT proceeded as follows:

- During the first half of 1999, NCAT undertook a survey of over 30 Industry representatives, consisting primarily of defense contractors with electronic manufacturing facilities. About two-thirds of the companies agreed to participate in the survey. The result of the survey was a ranked list of unfunded requirements from an industrial perspective. In general the responding companies indicated affordability driven projects had to have at least an 8:1 return on investment, with payback being achieved within 18 months. Eighty-eight percent of the survey respondents had a roadmap/strategic plan.
- A notable survey result was that ALL respondents indicated they would be willing to cost share projects with a commercial partner or Department of Defense Program Office (depending on project/cost share/data rights) and 65 percent of the respondents had participated in the ManTech program within past five years. Each of the participants expressed an interest in working together to reduce the duplication of projects within both ManTech and industrial programs.
- NCAT presented the results of the survey to the JDMTP members. The JDMTP received the survey methodology and the results very favorably. NCAT was requested to give the survey results wide distribution by presenting an invited paper at the Electronics Technical Session at the 1999 Defense Manufacturing Conference and also was requested to be a member of a technical discussion panel at the same conference.
- NCAT also supported the annual technology portfolio reviews conducted by the Sustainment Sub Panel and the Electronic Processing and Manufacturing Sub Panel as requested in 2000. NCAT provided representatives to help review and evaluate the various projects being conducted by each Military Services within the Sub Panel's purview.

2000 JDMTP Support

NCAT's support to the JDMTP and its Sub Panels during 2000 was funded wholly through this Navy Grant, administered through the Office of Naval Research. As in 1999, this support was characterized as "level of effort" and "on request" and was reflected by the following:

- NCAT attended all four quarterly meetings of the full JDMTP as requested. NCAT represented the views of Industry and, as in 1999, then solicited/provided Industry feedback to proposed JDMTP policy changes and new ManTech projects. As an example, one of the key areas where Industry provided comments through NCAT was in the area of cost sharing on individual ManTech projects. In a long-sought change,

the Congress made cost sharing a desired rather than a mandatory feature of the Defense Manufacturing Technology program.

- The JDMTP also requested that NCAT work with the members of the Industry ManTech Coalition to support a potential "ManTech Day on the Hill" in the Spring of 2000. This would be similar to an event that NCAT supported/facilitated in 1998. Its purpose would be to inform members of Congress about the benefits of investing in manufacturing technology and to give Congressional members and staff an opportunity to see first hand the successful applications of manufacturing technologies resulting from the ManTech program. In support of this effort NCAT surveyed the members of the Industry ManTech Coalition and prepared a series of detailed papers showing how the displays would be presented and arranged for Industry participation. The display was planned to take place in conjunction with DoD's testimony to the Congress on the ManTech Program. NCAT prepared a list of recommended Industry participants, coordinated with the Coalition and key Congressional staff members, and prepared briefings and instructions regarding the conduct of the event. However, after considerable preparation, the press of Congressional business as well as the apparent good health of the ManTech program with regard to Congressional deliberations resulted in the deferral of this event until a later year.

- NCAT also supported the annual technology portfolio reviews conducted by the Sustainment Sub Panel and the Electronic Processing and Manufacturing Sub Panel as requested in 2000. NCAT provided representatives to help review and evaluate the various projects being conducted by each Military Services within the Sub Panels' purview.

Support for ManTech Technology Area Review and Assessment Activities

The Director of Defense Research and Engineering (DDR&E) is responsible to conduct formal reviews of the portfolio of technology programs under its purview. These reviews are called Technology Area Review and Assessments (TARAs) and are usually held every two years. A multi-disciplinary team made up of recognized experts in various technology areas from relevant Industry, Academia, and DoD communities usually tackles each TARA. TARAs are intended to provide an assessment of each technology program with regard to balance, completeness, relevance, and technology transition plans. They also provide an opportunity to evaluate the programs from the standpoint of identifying any inappropriate duplication with other DoD programs.

At the request of the Office of Technology Transition (the OSD office with oversight responsibilities for the DoD ManTech program) and the Chairman of the JDMTP, NCAT supported TARA ManTech review activities in 2000. To that end, NCAT attended and participated in the review. NCAT also solicited and arranged for high level, well-known and respected Industry and Academic experts to attend, and coordinated their participation in the ManTech TARA.

The JDMTP and the OSD Office of Technology Transition indicated the participation of Industry and Academic experts solicited by NCAT was critical to the success of the 2000 TARA activities and indicated they would be availing themselves of NCAT's participation and support for the next (2002) TARA. (Note: At the time this report was being written, NCAT's support had been requested by the JDMTP and the Office of Technology Transition for the 2002 TARA.)

Naval-Industry R&D Partnership Conference

This Naval-Industry R&D Partnership Conference was held in August 9-11, 2000 at the Marriott Renaissance Hotel in Washington, D.C. The Conference was sponsored and hosted by the Office of Naval Research (ONR). It established a dialogue with Industry through which the Department of the Navy will be able to better leverage commercial products and research and development. The Navy has indicated that establishment of such leverage will enable the Naval Service to have access to the resulting products for use in naval systems, thus driving down system costs without compromising capability.

The Office of Naval Research requested NCAT's assistance in supporting this Conference. In preparation for the conference, the National Center for Advanced Technologies supported pre-conference planning activities over an 18-month period and then executed this three-day event, which attracted over 500 Industry and Government attendees and involved over 50 speakers and presenters. NCAT was responsible for all conference activities, including preparation of the conference venue, advertising the conference to potential attendees (both Government and Industry), advance and on-site registration, catering, planning for the agenda, recruiting Industry speakers, etc.

One of the innovative pre-conference planning activities conducted on behalf of the conference included a "business war game" activity held at the Washington Navy Yard in Washington DC. NCAT was tasked to support this activity, including planning, registration, participation in working groups, catering, and documentation of results. NCAT also arranged for the participation of Industry representatives and a presentation by the Honorable John W. Douglass, President and CEO of the Aerospace Industries Association and former Assistant Secretary of the Navy (Research, Development, and Acquisition). Included in the War Game planning was dissemination of information including venue maps, location of all conference meetings and displays; timetable for presentations, meetings, and social events.

To bring this Naval-Industry R&D Partnership Conference to fruition, NCAT, in conjunction with the Office of Naval Research and in close coordination with the Navy/Marine Corps Conference Planning Integrated Product Team (IPT), scheduled, planned, organized, and executed the R&D Conference. Specifically, in support of this Naval Industry R&D Partnership Conference NCAT:

- Accomplished a complete Conference advertising and publicity campaign, to include the acquisition of an extensive Industry name/address/company database for use in

targeting direct mailings in support of the Conference, several mass postal (postcard) and electronic (e-mail) mass mailing efforts, and solicited Industry attendees through the good offices of the Aerospace Industry Association and its member companies, and the Associations and Professional Societies of the Multi-Association Industry Affordability Task Force. NCAT's Conference advertising efforts included:

- Purchase of a custom mailing list providing the names of over 14,000 individual in charge of research and technology at defense and commercial firms.
- Mailing over 24,700 custom-designed four-color postcards advertising the Conference, using four different pre-screened Industry and Office of Naval Research mailing lists.
- Production and mailing of 2,600 personalized letters and tri-folds to potential Conference attendees.
- An additional 6,300 postcards were provided to members of the Conference Planning IPT for their use.
- Of particular effect was an Executive Action Report signed and forwarded to the senior leadership of member companies by the President and CEO of the Aerospace Industries Association, the Honorable John W. Douglass (Mr. Douglass also participated in the Conference as a speaker and panel member).
- Mailing of over 5,000 e-mail announcements notifying potential attendees of the conference and providing conference information.
- Development and production of large four color posters, suitably mounted, as well as and hundreds of color flyers for use by the Government members of the Conference IPT in advertising the Conference within their own organizations.
- Soliciting the members of the Multi-Association Industry Affordability Task Force to advertise the Conference within their newsletters and other internal/external publications and also on their Internet web sites.

- Researched candidates for and then, after coordination with the ONR Conference planning team, solicited plenary session and tutorial session speakers, panel moderators and panel members (including obtaining preliminary agreements to speak pending receipt of a formal ONR invitation), and drafted invitation and thank you letters as requested for the use of ONR.

- Created a custom Conference information and registration web site (www.NavalRandDConf.org) that provided information regarding the Conference agenda and venue and also provided a means to register on-line. NCAT also created a registration database to track all paid and invited attendees and Conference participants (panel members, leaders of tutorial sessions, speakers, staff, etc.).

- Invited the Industry component of conference, solicited and arranged the participation of appropriate Industry Associations, Professional Societies, and individuals representing Industry. NCAT invited Department of Defense personnel according to

invitation lists provided by the Navy sponsor and other Government Agencies as appropriate.

- NCAT conducted Conference pre-registration and registration; creation, printing, and compilation of large conference attendee packets (one per conference participant, over 650 in total); and distribution of all conference materials. The conference packets (a large three-ring binder) included the conference agenda in both a short (pocket) and long form, tutorial descriptions and locations, conference activity locations and venue diagrams, exhibit information and location, local information, speaker and panel member biographical information, etc.

Under the guidance of its sponsor, NCAT identified specific individuals and programs to assist in crafting the conference agenda. In addition, NCAT arranged, scheduled, and conducted major portions of the program, which included the plenary sessions during which both keynote presentations and panel discussions were conducted. NCAT also coordinated breakout sessions that provided a forum for Industry-Government information exchange.

NCAT organized and managed the panel events to meet the ONR's conference objectives and vision of DoD and Industry partnering. NCAT communicated with panel participants through point papers, e-mail, phone, and fax to explain purposes, expectations, and limitations of the panel activity. NCAT prepared written questions/issues that the panelists would address and determined those that were of greater or lesser importance to the panelists. NCAT coordinated evolving question/issue content with panelists and the Navy's Conference Management team well in advance to ensure the most productive and meaningful results. NCAT assisted in preparation of remarks for Conference Chairperson, Industry spokespersons, and panel facilitators.

NCAT helped organize a program for breakout sessions and took care of all details concerning the venue of 35 exhibits and display booths of government support programs available for Industry R&D participation. NCAT ensured that the audio-visual services and administrative support services (including advanced and on-site conference registration) were available; arranged food and beverage services to support the conference, including breakfasts, and special speaker/panel members' breakfasts, luncheons (with a special luncheon speaker), and reception activities, and audiovisual needs. NCAT executed the preparation and distribution of conference materials (proceedings) and assisted with post-conference survey analysis. A PowerPoint briefing documenting the post-conference surveys was provided to the ONR conference sponsors.

Post Conference analysis of the registration data and conference surveys completed by the attendees indicated that:

- Approximately 550 persons attended the 2000 Naval-Industry R&D Partnership Conference. About 40 percent of the attendees were from the Government (mainly DOD), about 55 percent were from Industry, and the remainder were from Academia.

- There were 53 conference speakers (including members of discussion panels) during the plenary sessions. These included the Under Secretary of the Navy, the Assistant Secretary of the Navy (Research, Development, and Acquisition), the Principal Deputy Under Secretary of Defense (Acquisition and Technology), the Chief of Naval Research, several Industry Association Presidents, and numerous Flag level officers and civilians from the Navy and the Marine Corps and Industry equivalents. (Note: A copy of the final Naval-Industry R&D Partnership Conference Agenda is enclosed at Appendix C).

- There were 26 breakout sessions spread over two days. Each session was led by a subject matter expert that facilitated the session. Conference attendees were free to attend whatever sessions they chose, although they (for conference planning purposes) were asked to indicate a preference during the conference registration process.

- There were over 100,000 hits on the conference registration web site prior to the Conference. Almost two-thirds of the hits were from smaller Commercial and Defense Industry domains. This indicates that word of the conference was gotten out to a highly diverse community.

NCAT, using a conference feedback survey form distributed to each attendee, evaluated the attendees' impressions of the Conference. Copies of all the forms and a transcription of all written comments were provided to the Conference sponsors. The results in general were very favorable with any negative remarks usually applied to a specific item (e.g., "Great conference, but...").

- Conference Facilities and Venue. The hosting and facilities were considered first rate by all attendees. The audiovisual arrangements, catering, and social events were all lauded in strong terms.

- Panels. The discussion panels were very well received and there was very high-level panel participation, well balanced between Industry and the Naval Service; and, within the Naval Service, relatively well balanced between warfighting communities. However in some cases there was not enough time allotted for substantive panel discussions. This was in part due to the large number of panel members in some cases and in others due to the moderators or panel members using more than their allotted time for remarks. Also, for some of the panels there was not enough time allotted to fully satisfy the demand for questions and answers with the members of the audience.

- Industry and Government Exhibits. More room for exhibits was needed (the available area was fully subscribed early) and if possible the exhibits should all be concentrated in one area rather than the two areas forced by the restrictions of the venue.

Other observations regarding the Conference from the NCAT viewpoint were that registration was not evenly distributed—a late surge of registrants made for interesting,

last minute, adjustments in the size of the venue. The list of panel members and plenary speakers was unusually stable compared to other conferences with which NCAT has been involved—there were very few last minute substitutions and there were no speaker no-shows.

After the Conference all presentations and other Conference materials were made available for download on the Conference web site. The conference sponsor, the Office of Naval Research indicated they were satisfied with the conduct of the Conference and the results achieved.

Modular Open Systems Approach Industry Steering Group

NCAT, via funding from the Open Systems Joint Task Force within the Office of the Secretary of Defense (OSD), convened the Modular Open Systems Approach (MOSA) Industry Steering Group (ISG) to analyze issues and make recommendations in the following areas:

- Identification of current and emerging issues over modular and open systems and their impact on weapon systems program
- Establishment of industry and DoD goals that address Industry/DoD leadership concerns and formulation of joint strategies to address these issues
- Establishment of performance measures against which to evaluate progress towards fulfilling Industry and DoD implementation goals
- Identification and characterization of organizational, regulatory, policy, contractual, cultural, and other obstacles faced by DoD and Industry with respect to implementing modular/open systems, and formulation of strategies and methods to overcome these obstacles.

The ISG consists of nine members, representing a broad and well-rounded cross section of Industry and Academic backgrounds. The members have a wide variety of past experience and current expertise. The MOSA ISG identified the DoD's Joint Technical Architecture (JTA) as its first focus area. After conducting a lengthy assessment they then briefed their findings initially to the Director of OSD Interoperability and his staff. Further presentations to the Director of Defense Research and Engineering and to the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) are planned.

The purpose of the study's first phase with regard to the JTA was to provide the DoD with an independent Industry view of the Joint Technical Architecture. The ISG has worked (and is still working) 22 different JTA-related issues from an Industry viewpoint. Key among these is the use of open systems standards. A brief summary of the status of the ISG's work to date follows.

From the ISG's standpoint it was clear that the focus of the DoD's JTA work has expanded to include interoperability in a more full sense than was previously understood by Industry to be the case. Originally "interoperability" referred to "skin-to-skin" communication(s) between weapons systems. However, it is now being expanded below that, to include module-to-module interoperability. Also, there are an increased number of domain-specific standards being used. Unfortunately, it is Industry's view that they are being improperly applied and overused. Industry feels this inhibits innovation, especially in acquisition reform. There are literally hundreds of interoperability standards (580+ standards either mandated or emerging and likely to be mandated). By contrast the Aerospace Industries Association (for example) has suggested a reduction to just 49 interoperability specifications and standards. However the ISG considered that this approach is unlikely to be accepted by the DoD because they are not in DoD's preferred format.

There are many ambiguities in the current DoD JTA process. More important, Industry has not been a part of JTA development to any significant degree. Unfortunately, from an Industry viewpoint, JTA has become less oriented towards guidance and has evolved to become more regulatory in nature. Industry feels that the current DoD management focus as regards JTA is far too narrow, concentrating overly on the technical architecture and not balancing between operational needs, technical architecture, and systems design. In many ways, it seems that the JTA's focus on standards has become a goal in itself rather than a partial means to the real goal, which is ensuring interoperability on a 24/7 basis.

The C4I community (both OSD and the Military Services) has worked these issues for the last three years to get where they are now—and they are pleased to be there. Industry is much less pleased. The warfighters and the acquisition community are not prime players here and have not been involved to any significant degree until recently. In Industry's view, interoperability should be driving standards rather than the other way around but that is not what is happening. The JTA is revised every year and every revision shows a substantial growth in the number of standards. A key weapon to help fight this trend would be if there could be a way could be established of quantifying the costs of imposing/mandating JTA in its current form.

The ISG strongly has indicated that Industry's view must not be confused with an attack on interoperability, which is strongly supported. Along this subject, it is important to note that it is very possible to fully comply with the JTA and NOT be interoperable. In fact, in Industry's view the current version of the JTA does not by any means ensure true interoperability. What needs to be established (or clarified) is that the JTA is guidance and is not mandated for use. It is a reference document (or should be). The ISG's position is that the JTA should only address interoperability architectures, with domain-specific architectural guidance for DoD systems coming from the DoD Open Systems Joint Task Force.

Matters of concern and important themes to the ISG and Industry as a whole include:

- There is considerable doubt as to amount of innovation Industry can bring to the table (cost, performance, schedule) when Industry has to deal with over 700 new and emerging standards.

- There is a group of DoD and other experts requiring Industry (without much consultation with Industry) to use the JTA. However these experts do not appear knowledgeable in the various domain areas such as aviation. By contrast, the aviation/aerospace community *did* convene a group of experts to look at that domain. In just three meetings they were able to come up with an agreed-to solution involving just 49 specifications/standards. What is needed is to do the same for each distinct domain.

- The whole JTA effort is well intentioned. However, the concept(s) behind it will not work. When the DoD's Joint Aeronautical Commanders Group (JACG) came up with 49 specifications/standards to get effective interoperability (and many of the 49 were not even in the 700 currently being carried by the JTA as needed) that was an indictment of the current JTA system as it is now structured.

- The current approach to the JTA is not working from an Industry viewpoint. However, what is needed is not finger pointing but a proactive positive approach.

- The JTA is technically complex. The JTA will be resisted and not be accepted/used by Government program managers and/or Industry until and unless it is institutionalized.

- There needs to be significant Industry involvement in the JTA rather than an exclusive Government management approach.

- The effectiveness of the JTA in the future depends on the JTA's capacity to be flexible and provide focused guidance (not inflexible direction) in crucial areas of interoperability.

Subsequent issues to be addressed by the Modular Open Systems Approach (MOSA) Industry Steering Group will (depending on funding and the desires of the ISG sponsor) probably include developing an independent Industry view regarding Intellectual Property Rights and the Global Information Grid.

The Chairperson of the MOSA-ISG, in conjunction with his government counterpart(s) and the Chairperson of the Industry Affordability Task Force, will present the ongoing results of the ISG's efforts to the Under Secretary of Defense for Acquisition, Technology, and Logistics and his staff on a schedule to be set by the Under Secretary. The study results, once approved by the sponsor, will be available at the NCAT website (www.ncat.com).

Army Munitions Production Study

The U.S. Army's ammunition industrial base community has made a key contribution to the national security of the United States by providing a robust and responsive source of supply of high quality artillery rounds, tank rounds, mortar shells, mines, and other conventional munitions to the Army and other Military Services. This community includes Army munitions planners and managers, ammunition industrial activities (both Government and private), facility use contractors, and many other organizations and persons involved in munitions research, development, manufacturing, and procurement. With the Army's ammunition industrial base community facing dramatic changes in technology in mission, it was felt within the Army that these challenges must be addressed in a proactive manner to ensure the U.S. Army would be able to continue to meet the ammunition requirements of future warfighters.

To help it address these challenges, the U.S. Army Armament Research, Development, and Engineering Center (ARDEC) tasked the National Center for Advanced Technologies to conduct an independent Industry study of the Army's munitions program. NCAT recruited and formed a large, multi-disciplinary study team from various Industry sectors to execute this task. The members of the team contributed their efforts "pro bono" over a period of several months.

ARDEC's general charter for the study team was to provide an Industry assessment of the Army's gun-launched munitions program, and to develop general recommendations on how the Army could improve its overall gun-launched munitions strategy. More specifically, the study team was asked to provide an independent Industry perspective regarding the Army's current approach to developing, manufacturing, and fielding gun-launched munitions. This included an assessment of the Army's precision munitions.

The problem to be investigated included future munitions "drivers" including shrinking Government requirements and production base combined with increasing Government technology drivers such as smart munitions, new energetics, etc. There is a perceived need for (1) increased synergies between commercial and DoD technology insertions and (2) new technologies/capacities for cost effective production and replenishment capabilities. Issues for the NCAT Study Team to address included identification of:

- Ammunition technology drivers and production base needs over the next 10 years,
- Ammunition technology drivers and production base capabilities over the next 10 years,
- Where Government and commercial needs converge, where needs are different, or where gaps exists, and
- Where initiatives can be undertaken to address these technology developments and/or where commercial products or processes can be adapted to the needs of the ammunition production base.

NCAT formed an Industry Steering Panel, comprised of Industry executives from within the national munitions production community. This Panel was supported by the work of four subordinate Industry teams, membership of which was designated by the Industry executives. The teams focused on four major munitions investigation areas:

- Energetics,
- Load-Assembly-Pack (LAP),
- Electronics, and
- Strategy and Systems Integration

The Electronics, Energetics, and LAP teams pulled together and synthesized technology and industrial issues that provided the foundation for the study. The Strategy and Systems Integration Team consolidated the inputs of the three technology teams and addressed precision munitions business and strategy issues. Over 40 persons served on these teams.

An Executive Committee directed and evaluated the work of the four study teams. The Executive Committee was made up of senior Industry executives, management consultants, and distinguished academics. Industry participation included both munitions vendors and facility-use contractors that managed Government-owned ammunition facilities. Several Executive Committee members had previously held Army leadership/executive positions within the ammunition industrial and research community.

The specific objectives of this Industry study were to provide an Industry view of the Army's strategy, plans, and approach to gun-launched precision munitions, identify and address technology, Industry, and business challenges, and to provide an improved munitions strategy and approach for civil-military integration

The NCAT study's findings and recommendations were briefed to the ARDEC sponsors of the study and senior representatives of the Army Material Command (AMC). The Industry findings and recommendations contained in the report were unconstrained, very much to the point, and possibly involved some major changes in the way the Army conducts its munitions development and production programs. In general, the Final Report was very well received by the sponsors of the Study.

Interest in the results of this study has included the United States Congress (members and staff), the General Accounting Office, and senior Army and OSD leadership. The contents of the full study are documented in an NCAT Final Report *"Army Munitions: A Future Perspective"* which is currently in the hands of AMC, awaiting full briefing to the Industry at large. This study is not yet releasable, pending the Army Study sponsor's approval.

Appendix A

Current Membership of the Multi-Association Industry Affordability Task Force Executive Committee

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Current (2001)
Multi-Association Industry Affordability Task Force
Executive Committee

Chair: Mr. Philip Odeen, TRW

Mr. Robert Cattoi, Rockwell Collins

Dr. John DeCaire, National Coalition for the Manufacturing Sciences

Mr. Daniel George, Pratt & Whitney

Mr. Daniel Grossman, The Boeing Company

Dr. L. R. Hettche, Pennsylvania State University

Mr. Richard Jarman, Eastman Kodak

Mr. Frank McCarty, Society of Manufacturing Engineers

Dr. Mike McGrath, Sarnoff Corporation

Mr. Donald Nilson, Lockheed Martin

Mr. Rusty Patterson, Raytheon Corporation

Mr. Richard Paul, The Boeing Company

Dr. Herbert Rabin, University of Maryland

Mr. Herm Reininga, Rockwell Collins, Inc.

Mr. Lawrence Rhoades, Extrude Hone

Dr. Daniel Schrage, Georgia Institute of Technology

Mr. Bob Shafrik, General Electric Corporation

Mr. Walter Sonneborn, Bell Helicopter, Textron

Mr. Steven Walker, Lockheed Martin

Past Chairs:

Mr. Jim Sinnett, The Boeing Company (1996-2001)

Mr. Aris Melissaratos, Westinghouse (1990-1996)

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Appendix B

Meeting Agendas
and
Selected Meeting Minutes
Of the
Multi-Association Industry Affordability Task Force

1999-2001

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Affordability Task Force
Executive Committee Meeting – 9 March 1999

Will be held at the National Center for Advanced Technologies (NCAT)
6th Floor Conference Room 1250 Eye Street, N.W., Washington, D.C. 2005

Final Agenda

09:00 – 09:30	**Welcome**	
	Opening Remarks	**Jim Sinnett**
09:30 – 10:30	**USAF S&T Program Issues**	**Dr. Helmut Hellwig, SAF**
10:30 – 11:30	**Aerospace Industry Issues**	**Mr. John Douglass, AIA**
11:30 – 13:30	**Navy CIO Program**	**Mr. Dan Porter, USN CIO**
12:30 – 13:30	**Working Lunch**	
	• **Sustainment Team Report**	**Ted Pertowski, Chairman**
	• **Section 912 Report Status**	**Eddie McClendon, Raytheon**
	• **Opnl Equipment Asset Mgt**	**CDR Mike Kiley, ONR**
13:30 – 14:30	**Cycle Time Reduction**	**Dr Joe Ferraro, Director, Acq Sys Mgmt, OSD** **Mr. Young Shin Acq Sys Mgmt, OSD**
14:30 – 15:15	**COSSI Program**	**Herm Reininga, Rockwell-Collins** **Rich Mirsky, OSD**
15:15 – 15:30	**Task Force Business**	
15:30	**Adjourn**	

Affordability Task Force
Executive Committee Meeting – 8 June 1999

Will be held at the National Center for Advanced Technologies (NCAT)
12th Floor Conference Room 1250 Eye Street, N.W., Washington, D.C. 20005

FINAL AGENDA

09:30 – 09:45	**Welcome**	
	Opening Remarks	**Jim Sinnett**
09:45 – 10:45	**USAF S&T Program Issues**	**Maj Karen Castillo, USAF**
10:45 – 11:45	**Single Process Initiative**	**Mr. Robert Schmitt, DCMC**
11:45 – 12:00	**Break**	
12:00 – 12:45	**Simulation Based Acquisition**	**Mr. Gordon Tillery, OSD**
12:45 – 13:30	**Working Lunch**	
	• **DMC Industry Involvement**	**John Olewnik, ONR**
	• **Munitions Study Update**	**Kevin Lewis, NCAT**
	• **R&D Conference Update**	**Mark Gordon, NCAT**
13:30 – 14:30	**Defense Evaluation and Research Agency**	**Colin Balmer DERA (UK)**
14:30 – 15:15	**BMDO Lean Program**	**Greg Stottlemyer, BMDO**
15:15 – 15:30	**Task Force Business**	

15:30 **Adjourn**

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING
September 15, 1999

Will be held in the Aerospace Industries Association Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

FINAL AGENDA

9:00-9:15	Welcome and Introduction	Jim Sinnett (Boeing)
9:15-10:00	Naval R&D Conference	Anthony Nickens, Dave Rossi (NAVSEA/ONR)
10:00-10:45	Defense Interoperability	Dr. V. Garber (OSD) (Director, Interoperability)
Break		
11:00-11:45	Open Systems Task Force	Colonel Michael Hanratty (Actg. Dir., OSJTF)
11:45-12:30	Simulation Based Acquisition Update	Joe Albergo, Gordon Tillery (OSD)
12:30-1:45	Working Lunch	
	• S&T Affordability Conference	Mark Gordon (NCAT)
	• Acquisition Reform Satellite Broadcast ("New Approach to Systems Acquisition")	Bill Quinn (NCAT)
	• Sustainment Team Update	Ted Pertowski (GEC Marconi)
1:45-2:15	SBA Team Update	Steve Olson (Raytheon)
2:15-2:45	Task Force Business	
Break		
3:00-4:00	DERA and Comments	Dr. Delores Etter, OSD Deputy Under Secretary (S&T)
4:00	Adjourn	

Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the National Center for Advanced Technologies
Washington, DC

September 15, 1999

The Industry Affordability Task Force (ATF) Executive Committee met on September 15, 1999 from 9:00 a.m. to 4:00 p.m. to review ongoing team activities and to meet with officials of the Department of Defense. Three ATF Team Chairpersons attended the session: Stephen Olson, Simulation Based Acquisition (SBA) Team; Ted Pertowski, Sustainment Team; Herm Reininga, Multi-Use Manufacturing Team; and Michael Robinson, Technology Transition Team.

Government representatives included: Dr. Delores Etter, Deputy Under Secretary of Defense (Science and Technology); Dave Rossi and Nancy Groves, Office of Naval Research; Dr. V. Garber, Director of Defense Interoperability, OSD: Colonel Michael Hanratty, Director of the Opens Systems Task Force, OSD; Joe Albergo, Office of the Director of Acquisition Program Integration, OSD; and Gordon Tillery, SAIC.

Mr. Sinnett (Boeing St Louis) chaired the session, which included a review of the Task Force's activities and presentations from various OSD and Navy officials. (See Attachment 1, Meeting Attendees; and Attachment 2, Meeting Agenda)

NCAT welcome and Chairman opening remarks:

Mr. Stan Siegel, President of NCAT and Mr. Bill Quinn, NCAT Director of Programs welcomed the group, highlighted the agenda events, and announced the Acquisition Reform Panel (to be broadcast via satellite to a wide Industry and DoD audience) in which Stan Siegel is participating. Mr. Sinnett welcomed the Executive Committee. The meeting commenced with a presentation from Mr. Dave Rossi, ONR.

Mr. Dave Rossi, Navy R&D Conference:

Mr. Rossi discussed the upcoming three-day Naval R&D Conference, to be held March 15-17, 2000. The need to partner with Commercial and Defense Industry and attempt to align commercial R&D investments towards Naval technology needs, thus leveraging investments from both sides, was emphasized. This conference is planned to be the first of what is envisioned to be annual Naval R&D conferences.

This R&D Conference, and those that will follow are intended to open the Navy's technology needs to the entire national industrial base. The Conference will get

information out to show what Navy needs as far as technology is concerned, will encourage R&D investment by Industry where the Navy needs it thus helping to satisfy Navy needs. ONR has chartered a strong planning group with representatives from all interested parties (SYSCOMs, ONR, OSD, etc.). This also includes NCAT, which is helping to put on the conference.

The current status of the Conference is that the meeting venues have been selected, an agenda has been approved, and invitations to speakers and panel members are pending signature. Dr. DeCorpo will coordinate with SYSCOMs to select and invite key industry participants. It is intended that Conference participants will include decision-makers such as Industry CEO's, chief scientists and technology officers, SYSCOM Program Managers and key Navy Acquisition personnel. The idea is that not only Navy will be present but that there will be significant participation and attendance from Industry.

Mr. Rossi described the organization and planned structure of the conference. It will have a plenary session and there will be breakout rooms available scheduled for detailed discussions between Industry and invited Navy PEOs/program offices. This should provide a good opportunity to identify major concerns and opportunities. Conference panels will consist of industry and government co-moderators, plus 5 to 6 panelists from Navy/Marine Corps PEO/SYSCOMs. There will be panels devoted to Air, Surface, Subsurface, and Space/Communications.

There was considerable discussion and interchange between Mr. Rossi and the committee members during the presentation. Highlights included concern over whether there would be a metric by which to measure success of the conference and whether the conference would emphasize near or far-term technology needs or both in a way that helps industry decide where to put its IR&D resources.

It was noted that the commercial side of the engine industry is doing lots of IR&D and the Navy will see what portions they can use. Mr. Rossi indicated the Navy is also looking into supportability, modernization of programs, and new ways of doing business. He feels Industry can say, and through this conference will have the opportunity to say, "Here is where we can participate." He noted that while acquisition reform is progressing there are still some barriers.

Mr. Rossi noted the Conference would foster considerable dialog and useful interchange between Industry and the naval acquisition community through its primarily panel-oriented structure. In particular, there will be pre-planned questions for the panels from the attendees that will be presented by a prompter. The questions will be well thought out and designed to promote discussion and identify issues. For example: "How are we going commercial?" "How will Industry do business with Navy if impediments are only partially worked out?"

Mr. Rossi indicated that the following year the planned conference would focus on how the Navy can implement technology transition. He pointed out (to general agreement) that there is a lot of interest in R&D, but insufficient interest in transition.

The Navy has a focused technology program for DD-21, aircraft carriers, LPD-17, NSSN, etc., which will lend to more and more involvement in transition. The fleet science adviser will be given inputs after the conference. This generated a question from the audience: "Is Dr. Buchanan going to share with Industry so they can have an input?" Mr. Rossi indicated that Dr. DeCorpo would set the stage with Dr. Buchanan to that end.

Mr. Mark Gordon, S&T Affordability Conference:

Mr. Mark Gordon pointed out that invitations to the S&T Affordability conference were sent out to select people on September 13, 1999. The conference will take place 25-26 October 1999 at the Marriott Crystal Gateway. The key objective of this conference is to improve focus on Affordability. Mr. Gordon indicated that in the past the conference sessions were in workshop format but this year it is going to be in conference format in order to reach a broader audience.

This year's conference focuses on the process for transitioning technology to the next phase of acquisition. As a result of the last year's workshop survey, a mini-training session was scheduled for the afternoon of 25 October. Four tutorials will provide the attendees with selective training tools. The full day plenary session is rescheduled for the October 26, 1999. Dr. Hans Mark, Director for Defense Research and Engineering, and David Thompson, CEO for Orbital, will serve as the Government and Industry keynote speakers, respectively. Additional presentations are designed to enhance attendee awareness of transition issues. These include a best practice panel describing how our S&T and weapon systems program managers interact to transition technology. Also, an Industry and General Accounting Office perspective on transferring technology is included, and a panel composed of the Service Acquisition Executives is planned. About 225 attendees from the S&T and Acquisition communities from both Industry and the Department of Defense are expected to attend.

Dr. V. Garber, Director of Defense Interoperatibility (OSD):

Dr. Garber indicated he had recently been appointed to this new position, where he would be responsible for integrating and advocating interoperability across the Department of Defense. He pointed out that Interoperatibility (or a lack thereof) impacts heavily and pervasively in procurement, military operations, and support.

Dr. Garber put forth that we have to be careful to craft and support an overarching strategy for interoperability within the DoD. In the past, military capability had to do with individual pieces but now we all have to deal with systems and systems of systems. The user side has shifted from seeing the military operational world as service commands to seeing the world as CINCs. Joint operations are something the entire Department needs to be able to accomplish and support. However, Dr. Garber indicated that goal is not being satisfied. There are major deficiencies in the manner in which our individual

Services operate together. The deficiencies are considerably more pronounced when dealing with our allies (as seen in the Kosovo and Bosnia conflicts).

Dr. Garber pointed out that the Assistant Secretary of Defense (C3I) is working to provide long-term focus and direction to achieve joint service operations. It is true to some extent that program goals keep changing but there are many joint activities and the overall goal has to be to make a difference. Dr. Garber indicated that we must start with what we have and develop a transition to a more interoperable set of forces and capabilities. There are interoperability gaps and we need to help fill them as soon as possible.

Dr. Garber said he welcomed the chance to get Industry views and said the whole process will welcome Industry views. The Service acquisition communities support simulation based acquisition, but a large issue is where to get the necessary funding. Also, how is Industry to be incentivized and funded to make SBA part of the design and testing process? According to Dr. Garber, the Joint Distributive Engineering Plan is looking to solve these problems. If they can come with an approach, he will be trying, with senior levels within DoD, to find solutions to these issues.

As Dr. Garber sees it, the goal of the interoperability program is to find the interoperability problems. How do we find the problem within different mission areas? There are common operational systems that have to work within the ASD C3I's joint technical architecture. There are pilot programs that we can use to build something but we have to find out what design-to specifications they will require.

Dr. Garber noted that BMDO/JTAMDO has done a lot of work in the interoperability area. There are many things that we can do and a lot that is being done. There is a greater and greater role of technology in the Interoperability arena and considerable support for the thought that open systems architecture will solve the problem—but how do we make it happen? If there is an essential performance provider, it will be the interoperability provider. Successful and meaningful interoperability efforts will have to result from an analytical approach for each system and system of systems because there is no cookbook answer.

Dr. Schrage recommended looking at the whole open systems architecture issue because that is what they want to do open systems within the Acquisition process. Much of what we develop and how we develop it is product centric and platform centric. We need to make strategic plans for doing insertions. He indicated that Dr. Pat Sanders had started to generate the capabilities to do this and the need still exists. Dr. Garber indicated he would try to force the system to work that way. It has to be a process that continues.

Dr. Garber was asked who would take care of taking the product, doing the system engineering on it, and then doing acquisition with respect to interoperability. He indicated that we need Congress and the Services to join us in developing a unified and comprehensive approach. Let us face the truth—people have not solved the problem by working them in an ad hoc manner. Will we encourage IPTs and Joint Program Offices

in order to get the program to work? One example is the Marine Corps. The Marines have interacted with the Defense Modeling and Simulation Office (DMSO) and have conducted many exercises.

The Executive Committee indicated that the Department of Defense spends some money on platforms but the rest has come from individual systems. How do we have our system of systems work with our allies? How do you marry the "now" with the "future" and how do you structure—and fund—transitions? Affordability has to be integrated into the system of systems not just only into individual systems. The members of the Executive Committee and Dr. Garber agreed. Dr Garber was also asked how he would task NCAT (i.e., the Affordability Task Force). The question also is how to articulate DoD's critical needs with regard to interoperability and at what level of granularity should they be expressed so industry, through NCAT, can help. The DoD/Industry Sustainment community has to do a lot with this. There needs to be plenty of follow-ups, with more focus and more elaboration.

Mr. Sinnett asked if the DoD was on a path to make Interoperability a performance requirement in operational requirements documents (ORDs) and other documents. Dr. Garber said that the answer was yes, that interoperability was now a key performance parameter (KPP) in ORDs.

Mr. Joe Albergo, Office of the Director of Acquisition Program Integration, OSD, Simulation Based Acquisition (SBA):

Mr. Albergo has responsibility for SBA within his organization. His organization is responsible for policy, proponency, and education/training for SBA. In addition to discussing his organization's role in the emerging SBA process, he discussed some of the upcoming initiatives and efforts in acquisition reform.

According to Mr. Albergo, the SBA Architecture Development and Standards Group (ADSG) will soon start up. This ADSG effort calls for seven full time–equivalents and will start in one to two months. [Note: The ADSG effort includes funding for the NCAT SBA Team, to be formed under the Affordability Task Force]. The Acquisition Council expects to have Phase One of the SBA program go to OSD for funding and approval.

Since Mr. Wilson took over, the focus is on near term and on moving on quickly and for the services to do their implementation planning. SBA is one of several concepts that will be made part of the new approach to acquisition. Dr. Gansler has chartered 12 studies. Many initiatives are going forward in Acquisition Reform and several will put in to the program.

Mr. Albergo also discussed the pending rewrite of the DoD 5000-series acquisition policy documents. He said the process that is going to be used to rewrite the acquisition policy and guidance is being concentrated in DCMC for the initial draft. DODD 5000.1 will be a thinner document of instruction and is intended to be ready by February. All that we do

has to be counted according to what affect it has on the Acquisition objective and should help to develop the new Acquisition model which is going more toward commercial practices. SBA as a concept and as an approach helps to meet Acquisition goals.

There will be an offsite to resolve any issues regarding the 5000-series rewrite and the new acquisition model. If issues are not solved at the offsite then the issues will go to Dr. Gansler. We need to focus in the areas of reform where industry can be involved early in the process. Mr. Sinnett felt there was a strong need to re-strengthen the ties with NCAT since the changes that have occurred when Mr. Longuemare left. He asked what could be done to reverse a possible backslide and indicated NCAT was a powerful tool in touch with 18 Industry Associations. That value cannot be duplicated.

Mr. Gordon Tillery, SAIC, Simulation Based Acquisition:

With regard to the evolution of the architecture for SBA, Mr. Tillery indicated that the Architecture Development & Standards Group (ADSG) would focus on evolving common formats and templates for use by all (DoD and Industry). A blended approach is what the Acquisition method is going to be. As the ADSG pulls together this concept of how SBA will work, then NCAT will help get the architecture evolved by soliciting Industry input on SBA implementation. The ADSG will provide a forum to share implementation experiences and negotiate changes to architecture specifications across services and other DoD agencies.

The distributed DoD/Industry Resource Repository (DIRR) will be a key component in SBA Systems Architecture. It will be a web technology-based distributed repository of tools, information resources, and generic infrastructure components for use with and reuse across various acquisition programs. The DIRR was recognized as a high priority by DoD and by the Industry participants in the Quality Function Deployment process conducted by Joint SBA Task Force (June/July 1998).

Mr. Tillery indicated that what is needed now is to pump energy into making the DIRR specifically and SBA in general happen. Industry and DoD alike must focus on making SBA a party of all that is System Acquisition. Full backing from the top industry and DoD acquisition officials is needed. What we have today is not strong enough for future needs. Our focus is on reducing cost. SBA can be an enabler—and DIRR is an enabler for SBA.

The DIRR concept presents a tremendous opportunity that is matched by equally major technical issues to resolve, including proprietary data access control mechanisms and major cultural issues such as incentivising participation of industry programs beyond primes/subs. For example: How do we get Industry components to want to belong? Who works with whom? Who shares/reuses? Technology has to be leveraged to be able to tie DIRR programs with industrial possibilities. SBA will be an enabler for the new lower cost, faster acquisition process. The DIRR will be a key component of the SBA Systems Architecture.

Mr. Tillery noted there were several cautions that should be mentioned: First, in the near term, SBA may not achieve envisioned ADSG membership norms: i.e., continuity of technically talented, cross service, functional representation. Second, additional methods for substantive industry participation may be needed. Slow initial progress may limit enthusiasm. Third, some degree of funding stability is crucial. To summarize, in the long term success for SBA will require adequate funding, effective senior level support, and the continuation of strong integrating mechanisms such as the ADSG.

Colonel Michael Hanratty, Acting Director, Open Systems Joint Task Force (OSD):

Colonel Hanratty presented a briefing on the Modular Open Systems Approach. He indicated he desired to begin a discussion between the OS-JTF, OUSD (A&T), and the Industry Affordability Task Force/NCAT to consider a proposal for creating a Modular Open Systems Architecture Industry Steering Group (MOSA-ISG). This dialog would then accelerate widespread adoption of a modular open systems approach throughout industry.

Col. Hanratty started by presenting the general modernization challenges facing the DoD and the enabling role of the open systems approach to meet these challenges. He noted open systems can be used by DoD to leverage commercial products ands practices in order to field superior warfighting capabilities more quickly and affordably. Especially in C3I systems an opens systems approach can, based on experience to date, sharply reduce R&D and engineering development time and cost. Reduced cycle time is an important benefit from the open systems approach. After a brief review of the open systems concept, Col. Hanratty discussed the following challenges faced when considering the institutionalization of an open systems approach in the Department of Defense:

- There is a considerable upfront investment required to implement an open systems approach on new programs. Coming up with this upfront investment cost may be the most difficult challenge within MOSA.
- The DoD's current "stovepipe" acquisition system often focuses on individual acquisition of individual programs, with insufficient consideration of systems of systems and long-term sustainability. Currently funding and management of systems acquisition programs are program-centric. Also, Acquisition Systems do not have much flexibility for switching their funding around. There is a "freeze and build" mentality. If you say you freeze the design then it is hard to argue in favor of an opens systems approach. Currently, ORDs lack a long-term focus on commonality and the long-term viability of a weapon system (i.e., the problem of inserting new technology 10, 20, or 30 years down the road). Also, industry often locks itself into its own proprietary positions.
- Lack of coordination/cooperation among DoD weapon systems programs and corresponding industry integrators that can limit large scale reuse.
- The tendency to often believe (with some justification) that a demanding weapon systems operational environment mandates a closed or proprietary design solution.
- The need for leadership at all levels to support the MOSA approach.

- A high degree of discipline is required to properly tailor and apply the MOSA approach to weapons systems design.

Col. Hanratty then discussed a notional proposal to create a Modular Open Systems Architecture Industry Steering Group (MOSA-ISG) to help accelerate the widespread adoption of a modular open systems approach throughout the Defense Industry. He identified several obstacles/issues faced by DoD and industry in attempting to implement a MOS approach. He indicated the following issues and considerations could be responsibility of the MOSA-ISG:

- Issues:
  - How should intellectual property be properly protected? How should proprietary items/technology be handled?
  - How can standards be managed across industry and the standards change with time? What mechanism do we need to handle changes in an effective industry-wide manner?
  - How can the issue of COTS be dealt with over the life of a system?
  - Can the proposed MOSA-ISG effectively address and resolve these types of issues in cooperation with the DoD?
- Considerations:
  - Industry membership should include all DoD systems, subsystems, and component suppliers interested in the open systems process.
  - The ISG charter and goals should be developed jointly (i.e., all members should produce a corporate process and infrastructure for MOSA).
  - The government and the ISG chair should present the results and benefits at least yearly to a SecDef meeting with CEOs.

Col. Hanratty indicated to the Task Force Executive Committee members he desired Industry ideas on the formation, membership, and charter for the proposed MOSA-ISG. The Task Force members provided the following feedback:

- Intellectual property is indeed a challenging issue—but manageable.
- There is a need for a broader strategic definition of open systems. A broader definition would help turn the DoD acquisition process towards open systems. This would be a capability-based, flexible, reconfigurable, and reusable acquisition process, which would no longer be product and platform centric.
- Implementation of MOSA has the potential to benefit every firm across the defense industry. Products with open interfaces should enable suppliers to compete more effectively and remain in business.
- The proposed MOSA-ISG should lay the foundation for a more productive relationship between primes and suppliers, and a more effective integration of acquisition strategy and sustainment considerations. The need for identifying and dealing with impediments to using open systems is urgent and will be a primary purpose of the ISG.
- The operational environment faced by weapon systems must be included as a part of decisions made regarding interface standards.

- A complete understanding of the effect of the wide adoption of MOSA on testing facilities (labs, ranges, etc.) needs to be established.
- There is a need for a partnership between the Systems Engineering Master Plan, Test and Evaluation Master plan, and other DoD plans so the DoD will not recreate the current problems in the future.
- A MOSA-ISG should be comprised mostly of suppliers rather than primes—suppliers have more of a stake in the outcome.
- There is also a need for a lower-level MOSA Industry Working Group to work detailed standards.
- Suppliers who now produce products based on de-facto standards may feel little incentive for using or adopting open standards.
- The MOSA-ISG should help redirect DoD efforts into the right direction and by so doing motivate the rest of Industry to accompany the Government in that new direction. Also, the MOSA-ISG should identify actionable items that have not been addressed by the Defense Science Board on open systems implementation.
- In their efforts the ISG should strive to identify the concerns and issues of DoD leadership and then address/resolve them. Finally, the exit criteria for the ISG should be spelled out in the charter at the initiation of the ISG effort.

The OS-JTF Director and the members of the Task Force Executive Committee agreed to exchange information regarding the various issues discussed at the meeting and work on developing a charter and plans for the MOSA-ISG and the MOSA-IWG. Industry, through the Task Force, will propose what they think the DoD would like for them to do and will give their recommendations on what approach to take. (ACTION) NCAT will write a proposal addressing how the industry steering group should proceed.

Task Force Business:

The following changes were announced:

- Ms. Rose Gibson, of Motorola will be joining the Executive Committee as a new member of the Industry Affordability Task Force.
- Mr. Bob Schafrik, of General Electric will be replacing Ms. Dottie Comassar as a member of the Executive Committee of the Industry Affordability Task Force.
- Mr. Walter G. Sonneborn, of Bell Helicopter Textron will be replacing Mr. P.D. Shabay as a member of the Executive Committee of the Industry Affordability Task Force.

Sustainment Team Briefing (Ted Pertowski):

Mr. Ted Pertowski gave the status of the team's activities. The Team briefed Dr. Pallas on Sustainment activities, and showed the myriad work tasks performed by the Sustainment Team. The Government seems to be reluctant to get more involved due to an inability to forecast what is going to be built next year. The Team has a meeting scheduled for September 22-23, 1999 with OSD personnel participating. Some Task

Force members will be going to the PEO/SYSCOM as a group to work on and participate in a panel presentation.

SBA Team Briefing (Stephen Olson):

There is still skepticism about SBA with Industry as to DoD's commitment (many words, little funding). The SBA ADSG will have to have involvement by Industry. NCAT's help is needed here. A need for a workshop was addressed, but funding is needed. As it now stands, Dr. Robin Frost (now under Dr. Garber) will have the technical piece of SBA within OSD. However, the funding will come from Dr. Etter's organization (DUSD/S&T).

As already mentioned by Mr. Albergo, John Wilson's organization (Director, Systems Acquisition to Dr. Gansler) will have control of policy, proponency, and training. ADSG will be meeting for a day and a half, on the week of September 20th, 1999. Mr. Albergo and Dr. Frost will be attending.

Members of the Committee suggested the Open Architecture folks should also be at the meeting of the ADSG there because there are many things going on in both areas that are complementary (MOS vs. SBA) or should be. It is not clear that either DoD or Industry has an overall understanding of what is going on in SBA (what is being talked about versus what is being actually done). SBA will happen—Industry is moving that way. The question is, will DoD be an observer, a player, or a distant influence? Industry needs to have a big part on this. NCAT should be able to help get Industry involved and help DoD and Industry communicate and interact in this arena.

Dr. Delores Etter (Deputy Under Secretary of Defense for Science and Technology):

Dr. Etter began her presentation by indicating the Department of Defense has a critical need for inputs from Industry to make sure that the right technology for the warfighter can be developed at an affordable price. What we have done in the past differs from now in that a changing environment is providing a much broader range of threats, including the potential for the employment of weapons of mass destruction, especially chemical warfare. The threat range is international and can change quickly. Also, "information technology for the warfighter" is what we should be addressing and this should have a very high priority.

<u>Overview and Assessment of DoD S&T</u>

Dr. Etter gave an overview of the distribution of DoD S&T funding. She indicated she spends a lot of time trying to defend the S&T base, most of which goes to industry. She made the point that once the appropriate level of funding for S&T is decided upon, then the S&T base should be taken off the table with regard to further budget exercises, because it represents the success of the future "force after next." The S&T base funding

should only be reduced if a credible assessment shows new technologies will not be needed or will be needed in a different timeframe.

Software Development

Dr. Etter then discussed her continuing concern with software development problems. In complex systems the software is the critical area, and of growing concern because, as time progresses so does cost of the software increase. Major software projects slip an average of 36 months and at least one third of software projects are canceled before completion. Military software programs seem to have the worst performance. Every program in DoD has software problems but that is the symptom of a larger problem—lack of program management discipline. Discipline is the most important area. When a complicated, complex development project is undertaken the system must have discipline to work. To succeed, everyone, especially program managers, need to collaborate better.

Dr. Etter indicated the DoD is working with the Capability Maturity Model Integration (CMMI) system developed through the Software Engineering Institute. She indicated there are capability models for software engineering and the DoD wants to make sure that a development team of contractors and subcontractors have a successful past performance record and related experience in developing comparable software systems. DoD wants to ensure the contractor team has demonstrated a mature software development capability, a repeatable process, and an effective software process measurement ability. She indicated DoD intends to establish a policy that, on every large software development program the contractor will have to be evaluated/reevaluated to an appropriate CMMI level (Level Three?). The DoD will require a risk mitigation plan for contractors that are not CMMI level 3 equivalent.

The members of the Executive Committee expressed some reservations about the level three requirement and how "or equivalent" would be defined/evaluated/administered. Dr. Etter indicated she would be more than happy to receive Industry input on this point before formal policy was issued. The committee members said they would provide this input through various venues, including NCAT.

UK Defense Evaluation and Research Agency (DERA)

Dr. Etter discussed with the Executive Committee the proposed reorganization of the United Kingdom's Defense Engineering and Research Agency. The in-house research and test part of the UK's defense establishment is suffering under that country's reduced defense budget. It has under utilized facilities and rising costs. To help reduce costs the DERA needs great flexibility, needs to globalize science and technology, and take advantage of civilian led research in key technology areas. As a part of the UK's smart procurement initiatives and defense diversification policy a public/private partnership has been proposed that would partially privatize DERA, allowing access to private capital.

The new DERA would still provide the majority of its considerable scientific and technical capabilities to the Ministry of Defense (MOD) but as a mainly private entity.

The elements actually retained within MOD would be as small as practical. These remaining Government personnel would provide research contracting capability and legal and administrative interface with overseas partners. The new DERA would be free to market itself and seek business from private industry all over the world. Funds would be generated for the UK treasury by selling shares in the new "privatized" DERA to the public.

Both Dr. Etter and committee members expressed reservations about the new DERA proposal. From Dr. Etter's viewpoint there was concern how classified materials and research could be shared. There is an entirely different connotation to U.S. government-to-U.K. government sharing of sensitive and classified research versus the U.S. Government sharing with a foreign, privately owned firm. Joint U.S./U.K research programs could become very complicated.

Committee members were concerned about classified research and also about how intellectual property rights could be protected. Some personnel and offices within DERA would inevitably work on a joint U.S./U.K program and then work on another private program. The prospects for leakage of intellectual property would be high. There was also the prospect for conflict of interest and the impartiality of DERA would inevitably be suspect. When the DERA is evaluating a U.S. product and at the same time evaluating a competing product in which it has had a private research and development role the conflict cannot be avoided. As the DERA would still be the official defense evaluation agency for the U.K. there would seem to be no way around this conflict of roles: evaluation of competing products versus being a party to one side of the competitive development of those products. The Executive Committee indicated they did not feel this could be a model for the DoD and further, that it would hurt the prospects for joint research and development with the United Kingdom in defense matters.

(ACTION) The Executive Committee indicated to Dr. Etter that they would document their concerns in an NCAT letter to the British government.

The Executive Committee Adjourned at 4:00 p.m.

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING—March 1, 2000

Will be held in the Aerospace Industries Association Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

AGENDA

9:00-9:15	Welcome and Introduction	Jim Sinnett (Boeing)
9:15-9:45	Dual Use S&T Program Assessment Update and PEO/SYSCOM Commanders Conference—Overview and Industry Participation	Bill Quinn (NCAT)
9:45-10:30	Sustainment Team Update	Eddie McClendon (Raytheon)
10:30-10:45	Break	
10:45-11:30	Title III Program Update	Mike Corridore (OSD)
11:30-12:30	DoD 5000 Series Rewrite and Evolutionary Acquisition Update	Dr. Joe Ferrara (OSD)
12:30-1:00	Working Lunch	
1:00-1:30	Current Congressional Outlook	Jon Etherton (AIA)
1:30-2:00	Initial Army Munitions Requirements Study Results	Kevin Lewis (NCAT)
2:00-2:30	Task Force Business • Chairman's Report on Meeting with Dr. Etter • Future Areas for Task Force Studies and Emphasis • New Exec Cmte Member(s) • Previous Meeting Minutes	Jim Sinnett (Boeing)
2:30-2:45	Break	
2:45-3:30	Task Force Business (Cont'd)	
3:30	Adjourn	

Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the
National Center for Advanced Technologies
Washington, DC

March 1, 2000

The Industry Affordability Task Force (I-ATF) Executive Committee met on March 1, 2000 from 9:00 a.m. to 3:30 p.m. to review ongoing team activities and to meet with officials of the Department of Defense. Several ATF Team Chairpersons attended the session: Eddie McClendon, Sustainment Team; Herm Reininga, Multi-Use Manufacturing Team; and Michael Robinson, Technology Transition Team.

Government representatives included: Dr. Joe Ferrara (Director, Acquisition Systems Management, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics) and Mike Corridore (OSD Program Manager for the Title III Program)

Mr. Sinnett (Boeing St Louis) chaired the session, which included a review of the Task Force's activities, presentations by NCAT and AIA Staff, and presentations from various OSD officials. (See Attachment 1, Meeting Attendees; and Attachment 2, Meeting Agenda)

Executive Summary:

- The upcoming PEO/SYSCOM Workshop Conference April 3-5, 2000) was briefed. Industry now comprises about 20 percent of the attendance. Industry participation was solicited for both the workshop sessions and an industry panel. ***Actions:*** *Members of the Executive Committee suggested candidates for the panel and offered to provide names of potential industry attendees within 10 days (NCAT will issue the invitations). Each Committee member will provide 1-2 questions to be asked of various speakers and panels at the PEO/SYSCOM Conference, NCAT will synthesize and forward the Industry input to the OSD conference planning organization.*

- The on-going Dual Use Science and Technology Independent Assessment (a Panel consisting of all Industry/consultant members) was briefed to the Committee members. This included a DU S&T program overview and the initial results of the Assessment. A primary finding appears to be the onerous Government contracting system deters innovative commercial high tech firms from even approaching the DoD with their ideas. ***Action:*** *The Executive Committee requested NCAT arrange a future presentation from a Procuring Contracting Officer (PCO) to discuss various contracting methods.*

- A report was given regarding recent and planned Sustainment Team activities, including Industry RTOC presentations to PEO/SYSCOM events, a recent letter to OSD on establishment of a logistics reform focal point within DoD and RTOC events at the upcoming PEO/SYSCOM Workshop in April. ***Action:*** *The Executive Committee agreed the Sustainment Team Chair should participate in any further meetings/forums with Mr. Solloway/Mr. Oliver regarding the AIA Product Support Team/Sustainment Team letter on establishment of a DoD logistics reform focal point. There is no ready source of funding for the I-ATF's desired sustainment activities. Should funding become available, the I-ATF and NCAT could sponsor a series of workshops on needed reforms and how to do logistics reform. A special interest area for the workshops would be how to really accomplish RTOC.*

- An information briefing on the Defense Production Act Title III Program was presented. The program is moving from an emphasis on technology insertion and creating sustainment capacity to more of a focus on "dual produce" and "hard to get" parts initiatives.

- Dr. Ferrara gave an extensive presentation on the new DoD 5000-series acquisition regulations and the emerging evolutionary acquisition effort within the DoD. *The Executive Committee members wished to provide input into the new 5000 effort.* ***Action:*** *NCAT will provide electronic copies to all of the committee members. NCAT will synthesize and forward the resulting comments to DoD.* Executive Committee offered many comments to Dr. Ferrara regarding the new system. Included were that *evolutionary acquisition will require a different approach to technology development, logistic support needs to be explicitly included at the beginning of production, that there should be a CONOPS and support concept developed during the concept exploration phase, and that major cultural changes in the user, financial, and acquisition community will be required. The Committee also pointed out a faster cycle time was not always preferred—sufficient time must be allowed for a good IPPD flow.* ***Action:*** *NCAT will invite Dr Ferrara to address the next Committee meeting in June. The Executive Committee indicated the I-ATF and NCAT should pursue the conduct of education and training activities for the new 5000 series documents.* ***Action:*** *NCAT will pursue the development of a DoD 5000-series training proposal.*

- A presentation on the upcoming congressional cycle was presented. It will be an accelerated authorization/appropriation cycle this year because of the elections and no significant new initiatives will be pursued. No problems for ManTech but programs such as COSSI with no strong sponsors may face difficulty. *The Executive Committee indicated support for COSSI.* ***Actions:*** *NCAT will work with the members of the I-ATF, AIA, and COSSI Program Office to provide and information forum so Congressional staffers can become more fully informed. NCAT will request additional briefings on congressional status at future meetings of the Executive Committee.*

- Overviews of the ongoing NCAT Munitions Study and NCAT/I-ATF Modular Open Systems Approach proposals were presented. ***Action:*** *NCAT will present the results of the completed Munitions study to the Task Force at the next meeting. The Executive Committee indicated it would support the establishment of a MOSA Industry Steering Group, and that it would be very important to set up a group with representation from all affected Industry sectors (i.e., including avionics, power, controls, etc.).*

- The Executive Committee requested a briefing on simulation based acquisition, the high level architecture, and "what is next" in SBA from the Defense Simulation and Modeling Office at the next meeting. ***Action:*** *NCAT will solicit a presentation from DMSO. The members also indicated a need to expand the Executive Committee to include representatives from the ship/submarine and land systems sectors.* ***Action:*** *NCAT will solicit these sectors to provide representatives to the Executive Committee.*

NCAT Welcome and Chairman opening remarks:

Mr. Stan Siegel, President of NCAT and Mr. Bill Quinn, NCAT Director of Programs welcomed the group and highlighted the agenda events via satellite to a wide Industry and DoD audience) in which Stan Siegel is participating. Mr. Sinnett welcomed the Executive Committee. The meeting commenced with a presentation from Mr. Bill Quinn, NCAT Director of Programs.

Mr. Bill Quinn (Director of Programs, National Center for Advanced Technologies), on (1) the Spring DoD PEO/SYSCOM Commanders' Conference and Workshop and (2) Dual Use Science and Technology Independent Assessment Panel:

PEO/SYSCOM Commanders' Workshop and Conference

Mr. Quinn discussed with the members of the Executive Committee the upcoming PEO/SYSCOM Commanders' Workshop and Conference to be held April 3-5, 2000 at Fort Belvoir, Virginia. The purpose of the event has been (over the last seven years) to provide a forum for (1) vertical communication from OSD down, to provide information/direction; and (2) vertical communication up from PEOs, SYSCOM Commanders, and Program Managers, in order to provide feedback/raise issues. It also facilitates horizontal communication across services and programs. Starting about 18 months ago Industry representatives began to be invited and now comprise about 20 percent of attendees.

This year the theme of the conference and workshop is "Integrating Across the Life Cycle—Putting the Pieces Together." Objectives for the conference include the generation of open and constructive dialog amongst stakeholders on the elements of the life cycle, dissemination of information on latest DoD thrusts (e.g., new DoD 5000-series acquisition policy documents), and expanding Industry involvement. The event will

kickoff on the morning of April 4th, 2000. It will be preceded by a series of optional tutorial sessions on the afternoon of April 3rd. There will be nine breakout workshop sessions to work various issues. These groups will report out to a single individual, who will integrate and synthesize their inputs for a combined report out to Dr. Gansler on August 5th. The Conference will conclude with almost a full day of plenary sessions on April 5th.

A feature of the Conference will be an Evening Panel with the theme: "Commercial Industry Sustainment Practices: Can they be used to support the warfighter in peace and in war?" Industry (i.e., NCAT) has been asked to be responsible for the Evening Panel for this Conference. To that end Mr. Quinn indicated the Panel would primarily made up of those from Industry: Commercial shipping and air lines, a provider of supply chain management services such as FedEx or Caterpillar, the auto/truck manufacturing industry, and a firm that could discuss how commercial and military procurement practices and resulting response times compare and contrast. Retired Vice Admiral Hancock, former Deputy Chief of Naval Operations for Logistics, will moderate the Panel. Rear Admiral Archer, Deputy Commander of the Defense Logistics Agency will also be on the Panel. Several members of the Executive Committee suggested candidates for the Evening Panel.

Mr. Quinn also requested the help of the members of the Executive Committee in suggesting and obtaining suitable Industry representatives to attend the panel. *(ACTION: Executive Committee members to forward names of attendees to NCAT within 10 days, NCAT will ensure they are invited.)*

At all the plenary and panel sessions at the PEO/SYSCOM there is a requirement to provide pre-distributed questions for use by the moderators. Industry has been asked to provide several questions for each of four activities:

- 2-4 questions for the Evening Panel for use by the moderator
- 6 questions for use on during a presentation by the Software Engineering Institute.
- 2-3 questions to be used during a presentation by Dave Oliver
- 4-6 Industry questions to be used during an interview with Dr. Gansler
- 3-4 Questions to be used during a panel discussion on the DoD planning, programming, and budgeting system.

(ACTION: Each Executive Committee member to provide 1-2 draft questions in each area. NCAT will synthesize and coordinate the questions to be submitted to the OSD planning committee. NCAT will send out a reminder message in one week to all I-ATF Executive Committee members and I-ATF Team chairpersons.)

Dual Use Science and Technology (DU S&T) Independent Assessment

Mr. Quinn described the ongoing Dual Use Independent Assessment effort being sponsored by NCAT. Dr. Etter, Deputy Under Secretary of Defense (S&T) requested

NCAT/Mr. John Douglass (NCAT Chairman and President and CEO of the Aerospace Industries Association) to conduct an independent assessment of the DU S&T Program. The goals of the assessment are to:

- Evaluate the DU S&T Programs progress in achieving its objectives in jointly funding the development of DU technologies and making dual use development a normal way of doing business.
- Review and evaluate the statutes, policies, and structure under which the Program is constituted and conducted.
- Evaluate progress in increasing Program participation. This includes (1) identifying incentives/disincentives for participation, (2) examining DoD's actions to increase participation, and (3) reviewing the effect of using Non-FAR contractual agreements.
- Evaluate the appropriate Program size in light of congressional goals and recommend Program improvements.

NCAT chartered an Industry Independent Assessment Panel to look at the DU S&T Program with Mr. Douglass as the Chairman. Mr. Quinn indicated that the independent assessment effort began in October of 1999 and the last of four meetings of the Independent Assessment Panel had just recently been completed in February. The final report is being prepared and will be presented to Dr. Etter and the three Service S&T Executives in late March.

Mr. Quinn presented an overview of the current DU S&T Program for the Committee members who were unfamiliar with the Program. Of particular interest to the Committee members were the mandatory 50/50 cost-sharing provisions, the requirements to use only Technology Investment Agreements (TIAs) as contractual instruments, and the requirement to use 6.2 funding rather than 6.3. Benefits to the DoD are perceived as:

- The opportunity to leverage Industry funds to meet defense needs
- DoD access to leading edge commercial technologies
- Having defense considerations incorporated into commercial technologies
- The ultimate reduction of DoD acquisition and logistics costs

Mr. Quinn mentioned there were several consistent themes (the Panel did not necessarily fully agree with all of them, nor did the Executive Committee) heard by the Panel members during the assessment thus far:

- The commercial world is where most high tech will come from for the DoD—need timely access to these advanced technologies.
- Commercial firms do not want to deal with government because of issues with intellectual property rights, government cost accounting, export, and technology transfer controls, complex and lengthy contracting procedures.
- Different "clock speeds" (6.2 research and much later technology transition mind set vs. 18 month commercial clock for time to market).

- Government contracting officers not familiar enough with TIAs, instead they prefer FAR.
- 50/50 mandatory cost share is bad. Rather, the cost share should be a competitive selection criterion (like recent change to ManTech).
- All S&T funding should be counted and used, not just 6.2. In fact, given the clock speed issue and the need for rapid transition, 6.3 funding would make more sense.
- Not enough commercial (i.e., non-defense) Industry participation in the program (about 40 percent). There are too many traditional defense contractors (defeats goal of obtaining access to commercial high technology).
- More funding is needed to establish critical mass and move the Program forward. Or, the available DU S&T funding should be concentrated on a more limited number of technology areas.

As part of the ensuing discussion, members of the Executive Committee requested the next meeting agenda include a presentation from a Procuring Contracting Officer (PCO) to discuss various contracting methods (including "Section 845" authorities such as TIAs) and their suitability.

Mr. Eddie McClendon, Chairman, I-ATF Sustainment Team (Manager Logistics Requirements and DoD Industry Liaison, Raytheon) on Sustainment Team Activities.

The new Chair of the Sustainment Team, Mr. Eddie McClendon, gave a presentation on recent and planned sustainment activities. In particular he discussed:

- The Industry "Reduction of Total Ownership Cost" (RTOC) panel presentation at the last PEO/SYSCOM Conference (October 1999). This presentation was primarily a function of the Sustainment panel
- A recent letter to Dave Oliver (Principal Deputy Under Secretary of Defense for Acquisition, Technology, and Logistics) on establishment of a logistics reform focal point within the DoD
- The upcoming PEO/SYSCOM Commanders' Workshop and Conference in April 2000.

With regard to RTOC the message delivered at the last PEO/SYSCOM (October 1999) was that the problem had been studied to death, good solutions exist, and implementation of solutions has been very slow. The strong Industry message delivered was that it was time to move out and fix the problem.

Mr. McClendon noted that at the last PEO/SYSCOM Dr. Gansler and Dave Oliver had challenged both DoD and Industry representatives at PEO/SYSCOM to develop partnerships based on best business practices to address RTOC. They were urged to bring forth more good ideas for consideration in the struggle with what has been called

the Operations and Support Cost "Death Spiral." To that end the AIA Product Support Committee, with the help of the I-ATF Sustainment Team, developed a letter to respond to this challenge. The letter has been sent to Dave Oliver (Principal Deputy Under Secretary for Acquisition, Technology, and Logistics—i.e., Deputy to Dr. Gansler). Highlights of the letter included:

- RTOC problems and impediments to implementing the equally well-known solutions are fully documented.
- The primary solution set involves the integration of best business (commercial and government) practices implemented via private-public partnerships.
- There is no lack of innovative ideas from both government and industry
- The mutual inability to implement these activities remains the pacing issue.
- There are two fundamental implementation issues: (1) Overall inability to get a decision from DoD on potential solutions/proposals and (2) There exists no formal forum within DoD through which new ideas can be brought.
- What is needed is the establishment of an avenue and a process through which industry can present and receive timely action on new and innovative ideas.

The Executive Committee discussed the need for this letter (consensus: needed) and what drives the need. The Committee's view was that the problem is mainly top down—those on the bottom or outside the system cannot get a timely answer or decisions. This results to some degree from a tendency to be risk adverse—a particular feature in portions of the high-level logistics management chain in the DoD. Members noted they would rather have a fast "No" than a three-year "Maybe." It was also pointed out that the problem is not just within the DoD. Congress has a considerable influence over military logistics with the Depot Coalition being just one of many examples. Many decisions cannot be made without the consent of the Congress. However it was pointed out that there was much that could be done within the Congressionally imposed limitations, with a good example being the current F-117 TSPR effort. Unfortunately many individual good approaches are pursued on an individual program basis only. They should be sifted and the "best practices" instituted across program office and Service boundaries. ***(ACTION: NCAT/Sustainment Team Chair will participate in any subsequent meeting with Stan Solloway/Dave Oliver regarding the PSC/Sustainment Team Letter.)***

For this spring PEO/SYSCOM Workshop and Conference Mr. McClendon indicated a breakout workshop session format would be employed. The sponsors of the PEO/SYSCOM (the OSD DSAC and Acquisition Reform Office) desire strong Industry support. He felt that breakout sessions of particular interest to members of the Affordability Task Force would include:

- Competitive Product Support (Industry will co-chair)
- Sustainment: Early logistics planning—how much is enough?
- Program Stability

- Tangled Sustainment Responsibility Knots

Mr. McClendon indicated he and NCAT were involved in the initial stages of the Air Force's Avionics Commonality Steering Group setup effort. This resulted from the recent USAF IG report on Air Force common avionics systems program management. The report highlighted a need to develop and implement an integrated long-term strategy to assess the utility of avionics commonality. One of the objectives of the still-forming senior level steering group will be to include Industry.

The members of the Committee noted that to achieve effective commonality common black boxes were not required—but common interfaces were. It would also provide a means to get newer technology into legacy systems. A suggestion was made that perhaps the way to pursue commonality would be through the Joint Logistics Commanders. It was also pointed out that commonality and open systems concepts required new methods and approaches for two level maintenance (with repair at the original equipment manufacturer) revised warrantees and specifications, and much enhanced physical configuration control.

Mr. Mike Corridore, (Office of the Deputy Under Secretary of Defense (Science and Technology)/Office of Technology Transition) on the Defense Production Act Title III Program.

Mr. Corridore presented a briefing on the Title III Program. The Program is authorized by the Defense Production Act. He discussed the background and history of the Program from the time it was authorized in 1950 through the present time. Unlike most defense programs it is under the jurisdiction of the House/Senate Banking Committees rather than the defense committees. (Note: The Act will require reauthorization in the fall of 2000.)

The purpose of Title III is to establish a domestic production capability for items critical for national defense. The Act authorizes the use of partnerships and incentives to preserve viable production capabilities. The most frequently used methods under the plan involve purchases and purchase commitments. Currently OSD provides program oversight and the Ai Force is the executive agent. Services identify potential Title III projects, assist in evaluating and prioritizing projects, and provide technical sponsors. Criteria for projects include: Essential for national defense, Industry cannot or will not provide needed capacity on its own, Title III is the best way to satisfy the need, and the combined defense and non defense need for the item exceeds the domestic supply. (Note: "domestic" includes Canada.)

According to Mr. Corridore Title III projects normally are configured to have two phases. Phase one involves the qualification of the manufacturer's processes and technology. Phase two involves the scale up of production to achieve the required capacities, demonstrations, and sales demand (often involves purchase commitments). Projects are approved by Dr. Gansler, Under Secretary of Defense for Acquisition, Technology, and

Logistics (until 1992 it had to be the President). The DPA Fund Manager is Dr. Etter, Deputy Under Secretary of Defense (S&T).

Mr. Corridore discussed past and ongoing projects and funding with the members of the Executive Committee, with particular attention to flat panel displays. He noted the current emphasis has been on technology insertion and creating capacity for sustainment and troop support. In the future (assuming reauthorization and funding is available) the program will concentrate more on "dual produce" and "hard-to-get" parts initiatives.

Dr. Joe Ferrara, (Director, Acquisition Systems Management, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics) on Evolutionary Acquisition and the new 5000-series DoD acquisition policy documents:

Dr. Ferrara presented a briefing on the new DoD 5000-series acquisition policy documents that have been undergoing extensive revision since the Fall of 1999. He noted the current rewrite was qualitatively different than previous rewrites, which were done mainly to reflect organizational changes or reflect the effects of real-world changes (resulting from Congressional decrees, etc) such as LRIP. The last major change in 1996 picked up the need to integrate the acquisition of both weapons systems and major automated systems in one set of policies; and somewhat attempted to streamline the documents, which had grown from six pages to over 1000 pages since the first version was issued. Dr. Ferrara noted that each previous revision had accepted the existing acquisition milestone decision process. However, this new version will change that process significantly.

The major objectives of the rewrite are to reduce acquisition cycle time, reduce total ownership costs, and implement the Section 912 (FY1998 Defense Authorization Act) Study recommendations. At this point Dr. Ferrara was asked if Industry would have the opportunity to comment on these new 5000-series documents. The answer was yes but the time was limited for members of the committee. Dr. Ferrara indicated he would provide electronic copies of the draft DoD Directive 5000.1 (6 pages) and the draft DoD Instruction 5000.2 (20 pages) for comment. ***(ACTION: NCAT will distribute the electronic copies to members of the committee as soon as possible. The Executive Committee members will develop and forward their comments to NCAT. NCAT will synthesize the comments and forward them (along with the raw inputs) to Dr. Ferrara by March 15 so he can meet his March 20 deadline for all comments).***

Dr. Ferrara went over the philosophy behind the new policy and process documents. He indicated many of the new ways of doing business in the DoD acquisition world were not reflected in the current 5000-series, which were not very flexible nor were they supportive of non-traditional approaches. The current process treats innovative approaches such as Advanced Concept Technology Demonstrations, evolutionary block approaches, etc, as "non-traditional" excursions. Non traditional is a pejorative term—and should be turned around. In fact, some of these new non-traditional approaches will be the preferred approach in the future. The old 5000 process nominally endorsed

tailoring requirements and innovative program strategies. However, it provided no guidance. The new 5000 documents will facilitate tailoring by providing some guidance on alternative acquisition strategies.

The Committee had several questions. One was whether simulation-based acquisition equated to a demonstration of technology within the new documents. For example, does it cancel the "fly-before-buy" requirement? Dr. Ferrara indicated the answer was no—at least, not yet. SBA may mature to the level needed to satisfy fly-before-buy but is not there now, especially for a major system acquisitions. The Committee members noted that SBA/simulation was a good tool, still evolving and advancing, and can be used to satisfy some requirements.

Committee members also pointed out that the new documents and the companion JCS documentation (CJCSI 3070.1) seem to over emphasize cost to the detriment of affordability. It would be more helpful to establish a good definition of affordability in the new documents and describe system affordability in terms of cost/benefit ratios rather than an emphasis only on the bottom line. The key would be to correctly define affordability so it means the same to all.

Dr. Ferrara discussed the basic approach that had been employed thus far in the rewrite effort. There are two organizations, the Defense Acquisition Policy Steering Group, and a supporting group, the Defense Acquisition Policy Working Group. The first step was to develop an overall process model, then to write a new DoDD 5000.1 (six pages only, to be signed by the Secretary of Defense) and a new DoDI 5000.2 (20 pages, to be signed by the Under Secretary for Acquisition, Technology, and Logistics and the Director of Operational Test and Evaluation). Finally, a DoD 5000.2 Regulation is being developed (about 70 pages) which will specify procedures for the acquisition bureaucracy. Dr. Ferrara noted that everything the DoD can do without changing statutes is being included in the 5000 rewrite. In addition, a legislative package is being prepared for Congress in order to implement those changes that will require legislation.

Members of the Executive Committee received very favorably Dr. Ferrara's comments about the rewrite of the DoD 5000-series documents, especially DoDD 5000.1 and 5000I.2. However they expressed major concerns and offered cautions regarding the DoD 5000.2 Regulation process. They indicated that it was very possible—even likely—that the DoD acquisition and requirements bureaucracies (including those within the Services) could attempt to re-infuse the Regulation with the "business-as-usual" mode that the new 5000 Directive and Instruction are trying to squelch.

Committee members inquired if there was anything in the new documents that incentivized government program managers to work on optimizing the life cycle for the weapons system instead of concentrating on the relatively short term (1-5 years). Dr. Ferrara indicated there was no specific change along that line. However he noted that the problem is recognized. The DoD is trying to employ internal institutional measures to give the program managers more visibility and control over their programs. One of the measures being undertaken is to move civilian program managers and program executive

officers into acquisition slots. This will provide more tenure but removes programs somewhat more from their military customer.

The Committee asked if Dr. Ferrara would be willing to return at the next meeting to discuss the progress made on developing and issuing the new DoDR 5000.2 and the culmination of the DoDD 5000.1 and DoDI 5000.2 efforts. Dr. Ferrara indicated he would be happy to brief the Committee anytime. ***(ACTION: NCAT to invite Dr. Ferrara to make a presentation to the Executive Committee at its next meeting.)***

Dr. Ferrara presented a new acquisition model to the Committee. The main apparent feature of this model was that there will now be several paths through the acquisition process. Also, while the 5000-series has been applicable mainly to major defense systems, Dr. Gansler would like to apply evolutionary acquisition and the new model to less-than-major-systems as well.

The main features of the new acquisition model include:

- Multiple process paths through the model, not just a "one size fits all" linear path starting with concept exploration and culminating in a production decision. In particular, a system new start can occur at any point up to and including the production readiness decision.
- Evolutionary acquisition (EA) will be the preferred approach, with specific justification needed to not use EA. The burden of proof will be on the Service to show why evolutionary acquisition should not be used for any given program.
- There will be a focus on technology development and risk reduction prior to program commitment. What are now the "pre acquisition" activities of the science and technology arena are now explicitly included in the new process.
- Timing of the funding commitment and formal program initiation will vary with the maturity of the technology and concept. That is, depending on the maturity of the concept and the supporting technology the demonstration phase could occur immediately prior to the production decision or even coincident with production go-ahead.
- Flexible, time phased requirements will facilitate CAIV trades.
- Rigorous exit criteria will be defined prior to program commitment.
- At each milestone there will be three options: Proceed into next phase, do additional work and revisit decision, or terminate the effort.
- There will be only three (or less) milestone points:
    - **Milestone X**—initiation of the Concept Exploration phase in which paper studies will be conducted to analyze alternative concepts for satisfying a mission need. Exit criteria: Select a specific concept to be pursued and establish that the needed technology exists.

- **Milestone(s) D**—initiation of the Risk Reduction and Demonstration phase. Depending on the maturity of the technology and concept this phase could be very short. After Milestone D there will be three possible sub phases:

  1. **Advanced Development.** This includes development of subsystems and components that must be demonstrated before integration into a major system, and concept/technology demonstrations. Exit will occur when the system architecture and necessary technologies are determined to be mature.

  2. **System Integration.** This includes integration into the major system of the demonstrated subsystems and reduction of integration risk. Exit occurs through a system demonstration in a relevant environment (e.g., first flight).

  3. **System Demonstration.** This includes the completion of development and demonstration of engineering development models and a combined development/operational test program. Exit will involve a system demonstration in an operational environment.

- **Milestone C**—Commitment to a rapid acquisition program employing evolutionary acquisition methods. To get through this Milestone the following is required: Demonstrated technology, an approved ORD with assured interoperability, an affordability assessment, and a strategy in place for an evolutionary approach, production readiness, and supportability. After Milestone C there are two sub phases staring with:

  1. **Production readiness/LRIP.** Includes test (IOT&E and LFT&E) of production-representative articles, creation of a manufacturing capability, and low rate initial production. Exit defined by a beyond LRIP report from DDOT&E.

  2. **Rate Production and Deployment.** Includes full rate production and deployment of the system.

The Committee was very interested in the new process. As far as the advanced development sub-phase (and other phases as well) they noted what appeared to an emphasis on product technology only. They felt there needed to be an equal emphasis on process technology as well (e.g., ManTech and supportability). The Committee also discussed with Dr. Ferrara the difference between "testing to learn" (DT&E) and testing to confirm (OT&E). Dr. Ferrara indicated there would be a greater emphasis on getting operators in the test process early—but in a "testing to learn" mode. Testing to confirm would be directed at satisfying milestone exit requirements.

Also discussed was how the concepts of "time phased requirements" and "cost as a military requirement" would be integrated into the new acquisition model. Cost is not yet a key performance parameter but is to be considered in formulating the ORD. Dr. Ferrara indicated there would be two operational requirements documents. The mission need statement will carry a program through the exploration phase—then an initial ORD is needed. This initial ORD would evolve into a final ORD. The final ORD would be established at or about the system demonstration sub-phase. This is still under discussion within the DoD.

The Committee members then offered a series of observations, comments, and suggestions as follows:

- If you look at the differences between development time for the system and the technology rollover times for various technology sectors, evolutionary acquisition will require a different approach to technology development. For example, engine technology/system development should begin well prior to avionics. In fact, avionics should be developed last since it changes so fast (Example: F-22 has almost beyond state of the art engine technology but F-22 avionics trails current commercially available technology in significant respects. This comes of starting development at the same time, not withstanding the gross disparity in technology sector cycle times.) Dr Ferrara noted that the technology readiness levels that will be in the new 5000-series at least in part address this issue.
- Logistics support for the program needs to start at the beginning of production, not after the beginning of deployment. The model (and it may be partially an artifact of the presentation slide for the new model) shows support beginning well after the start of production. Production and support should be shown and considered within the 5000-series as more of a continuum.
- During the concept exploration phase there should be a concept of operations and a support concept developed before the start of the next phase.

The Committee members asked how the new 5000-series process would work for software and data automation systems. The answer was that the same system would be used. In particular, depending on the maturity of the software and the hardware technology the ability to enter at different points would be appropriate. It was noted that according to the DDRE (Dr. Mark) there was not a single acquisition program within DoD that does not have major software problems. Since under the new process hardware will not be well defined it will be hard to fully define the software. This is particularly true because experience has shown that frequently software is asked to compensate for hardware deficiencies.

Dr. Ferrara also discussed the challenges to be faced in implementing the new acquisition process to be embodied in the DoD 5000-series. There are significant cost and logistics implications that must be carefully managed and planned for when evolutionary strategies are employed. For example, logistics and development strategies that reduce overall life cycle costs may well increase development costs. Also, developing a series of "blocks" of new systems implies costs to later upgrade earlier block systems or increased cost to support different configurations.

A major cultural change will be required. Users must be willing to time-phase their demands for system performance and accept and incremental fielding of increased capabilities. The committee members noted that there is and will continue to be within the user community a certain amount of disbelief that the second block, with increased capability, will ever be developed and deployed. Only successful experience with the new process will cure this "user disbelief" problem.

There are also strong BPPBS implications in that funding for successive blocks must be programmed and transition funding must be quickly available for successful technology demonstrations. This implies the need for funding "wedges," wherein unallocated blocks of future funding are held within the FYDP and directed towards specific new programs at a late stage of budget preparation. This practice is anathema to the comptroller communities within OSD and the Services, which prefer to detail and control funding over all years of a Future Years Defense Program in which all funding is associated with a specific program by year.

There will be issues with the Congress and the acquisition workforce as well. As far as education and training needs, this will be handled through a phased implementation approach and a series of planned road shows. Congress will be concerned about the visibility, accountability, and flexibility of the funding (including out year) allocated to programs being managed under the new policies.

The Committee pointed out that a faster cycle time was not always for the best. Sufficient time must be allowed for a good IPPD flow to obtain the benefits of an integrated product and process team approach. In fact, the newer the technology (e.g., V-22) the more time may be needed. Dr. Ferrara agreed, indicating the new acquisition process as it is now structured now actually has built in more time up front.

Committee members indicated their concerns to Dr. Ferrara regarding the relationship between the sophistication of and high-capability of the development tools currently available versus the acquisition system's current antiquated methods for estimating costs and establishing program budgets. For new systems there is a highly capable development process, employing IPPD, six-sigma, etc., that never before existed. HOWEVER, the DoD, and Industry to a lesser degree, is estimating the cost of new systems using historical costs to make decisions about, and justify, which programs to start. The effect on development and life cycle costs (almost entirely favorable) of these new techniques is not being factored in, resulting in flawed decision-making and a failure to efficiently allocate increasingly scarce acquisition funding against the equally increasing needs for those funds.

With respect to implementation of the new 5000-series, it will be phased in. There will be no "pilot" implementation, which can have the effect of delaying new initiatives. The new process will be implemented and used as quickly as possible with the inevitable "bumps" handled as they occur. Pre-Milestone II programs are likely candidates. Probably if a program is already past milestone II it will continue under the previous system. Right now it appears the first use could be on the Joint Transport Rotorcraft, Future Combat System, etc. It was suggested that at least 1-3 programs adopt the new system before the change of administrations next year. Early application of the new process will help to institutionalize it.

At the conclusion of Dr. Ferrara's presentation the Executive Committee was uniform in its high degree of appreciation for Dr. Ferrara's efforts. Several members indicated that

due to his presentation they now understood, for the first time, what DoD was driving at with the new 5000-series. Mr. Sinnett, Executive Committee Chairman thanked Dr. Ferrara and indicated he and the rest of the Committee members were looking forward to hearing from him at their next meeting.

Mr. Jon Etherton (Assistant Vice President for Legislative Affairs, Aerospace Industries Association) on the upcoming Congressional Cycle:

Mr. Etherton presented an analysis of the upcoming Congressional hear and legislative action cycles. This being an election year he expected that efforts would be made to accelerate the defense appropriation and authorization bill "markup" cycles in order to permit early completion of legislative actions. The Democratic and Republican Party conventions, as well as election campaigns (one third of the Senators and all of the Representatives are up for reelection) will compress the legislative calendar. Therefore he expects few if any initiatives will be pursued (no "heavy lifting"). Of the programs of particular interest to the Executive Committee he indicated he saw no difficulties ahead for the ManTech program but that the Commercial Operations and Support Savings Initiative (COSSI) Program may face some problems. This is not because it has any resistance within the committees but rather because it has no strong sponsor and is perceived as somewhat duplicative of other R&D programs

The members of the Executive Committee discussed how the COSSI Program possibly could be assisted. ***(ACTION: NCAT will work with the members of the I-ATF, AIA and OSD COSSI Office to provide an information forum where congressional staffers could meet with COSSI program managers from Industry and the Services to become more fully informed regarding the Program's demonstrated and potential benefits.)***

The Executive Committee members also indicated they found Mr. Etherton's presentation very valuable and requested he regularly brief the Committee at its meetings. ***(ACTION: NCAT will request Mr. Etherton provide a congressional status briefing at future Executive Committee meetings.)***

Mr. Kevin Lewis (Director of Defense Research Programs, National Center for Advanced Technologies) on (1) the Munitions Production Readiness Base Study and (2) the Modular Open Systems Approach (MOSA):

NCAT Munitions Production Base Readiness Study

Mr. Lewis provided an overview of the ongoing NCAT Munitions Study being conducted for the U.S. Army. The study will provide an Industry view of the Army's approach to precision munitions; identify and address technology, Industry, and business challenges; and identify key elements of an effective precision munitions strategy. Mr. Lewis discussed the study's current definitions of precision munitions, where the Army could obtain the required additional resources to implement industry's concepts for use of

precision munitions, and the study's recommendations. The study will be ready for presentation to Army leadership in the late March/early April time frame. ***(ACTION: NCAT will present the complete results of the study to the Task Force at its next meeting.)***

Modular Open Systems Approach (MOSA)

Mr. Lewis presented the current status of the NCAT/I-ATF MOSA proposal to the DoD Open Systems Joint Task Force (OSJTF). At the September 1999 meeting of the I-ATF Executive Committee the OSFTF Acting Director, Col. Hanratty, gave a presentation on the open systems approach. Col. Hanratty indicated that he was interested in having the Multi-Association Industry Affordability Task Force sponsor an Industry MOSA Steering Group. The Steering Group would have both traditional defense and non-traditional suppliers as members and would operate under the umbrella of NCAT and the I-ATF. Also, the Steering Group would recommend open systems policy to the Office of the Secretary of Defense as well as educate their own management and supplier firms on the open systems approach. The OSJTF appears to be interested in having an Industry MOSA Steering Group formed to look at:

- Identification of current and emerging MOSA concerns on the part of DoD and Industry leadership
- Establishment of recommended Industry and DoD goals for MOSA
- Establishment of recommended performance measures against which to evaluate progress towards fulfilling Industry and DoD implementation goals
- Identification and characterization of organizational, regulatory, policy, etc. obstacles faced by DoD and Industry with respect to implementing MOSA
- Formulation of recommended strategies and methods to overcome these obstacles

The Committee members indicated they would support the establishment of a Steering Group and that it was very important to set up a good group with the proper representation from all affected industrial sectors. Open systems is not just avionics (although that is the most obvious target) but also includes power, controls, other hardware, etc.

Mr. James M. Sinnett (Chairman of the Executive Committee of the Multi-Association Industry Affordability Task Force and Vice President Strategic Development, The Boeing Company) on the Chairman's Assessment and Other Topics:

Meeting with Dr. Delores Etter

Mr. Sinnett began by discussing with the members of the Committee a meeting he, along with Mr. Stan Siegel (NCAT President) and Mr. Bill Quinn (NCAT Director of Programs), had recently had with Dr. Delores Etter, Deputy Under Secretary of Defense

(Science and Technology) and Deputy Director of Defense Research and Engineering. Mr. Siegel gave a presentation to Dr. Etter and members of her staff on the history of the Task Force and the contributions it had made to resolving mutual DoD and Industry issues and suggesting new affordability approaches (the evolutionary defense acquisition study was mentioned in particular). He indicated however that recently the I-ATF had begun to suffer from the pinch of declining resources; pointing out that DDRE support of the I-ATF's affordability work had declined sharply.

Dr. Etter indicated she highly valued the efforts of the Task Force and the contributions it has made but that the resources available for her study efforts (which have in the past funded the NCAT secretariat function for the I-ATF) had been severely reduced. However, she indicated that some additional resources might be made available through other channels. In particular she was interested in what the Task Force could do in the areas of COSSI and MOSA.

Sustainment Activities

Mr. Sinnett and the other members of the Committee discussed where the Task Force should go with respect to the Task Force's sustainment activities. There is no source of funding available to support the Task Force's activities in the short term. However, the sustainment work that has been accomplished recently (PEO/SYSCOM RTOC Panel, the "Belly Button" letter, etc.) all seem to have been appreciated by the DoD. Once DoD (Dave Oliver, Stan Solloway, Lou Kratz, etc.) has responded to the "belly button" letter, and then the Task Force can suggest what it and NCAT could do for them and what it would cost. The approach needs to be: "We (Industry and DoD) are reforming acquisition and have made a very good start. However, this leaves untouched the other 60-70 percent of the cost equation, which is logistics and sustainability." NCAT and the I-ATF could sponsor a series of workshops on what reforms are needed and how to do reform in the logistics world. Also, the workshops could address how to really accomplish Reduction of Total Ownership Cost (RTOC).

Other

The Committee members suggested that a good avenue for NCAT and the Affordability Task Force to pursue would be the conduct of education and training activities (workshops, conference, CD-based tutorials, etc.) for the new 5000-series policy and regulatory documents. This would be along the lines of "train the trainer" activities, which NCAT and the I-ATF did for IPPD in past years. This training package could then be provided to the Defense systems Management College as "turn key" training software. ***(ACTION: NCAT (Mark Gordon) to develop DoD 5000-series training proposal. Dr. Schrage and Mr. Robinson will edit the proposal.)***

Future Presentations

The members of the Committee suggested that the Defense Modeling and Simulation Office (DMSO) be approached to give a briefing at the next meeting. The subject would

be simulation-based acquisition, the high level architecture, and what is next given the current program status. Also, the Committee would like to be briefed on the NASA Intelligent Synthesis Environment initiative in order to compare and contrast it with the proposed simulation based acquisition architecture. ***(ACTION: NCAT will solicit these presentations for the next Executive Committee meeting in June 2000.)***

Task Force Membership

The Committee discussed the current makeup of the Executive Committee. It was noted that there was little/no current representation from the ship/submarine building sector or the land systems sector. It was suggested that appropriate representation should be sought from these areas. Also, there are some major defense-oriented firms that are not currently represented. ***(ACTION: NCAT will seek to expand the membership and nominate representatives from the defense shipbuilding and land systems sectors. Also, NCAT will approach Mr. Noel Longuemare and others from defense companies to inquire if he would they willing to serve on the Committee.)***

Other

At the request of the Chairman, the Executive Committee approved the minutes of the last meeting as previously distributed. After a short discussion the Committee fixed the next meeting for June 28, 2000 at the AIA Goddard Room, 1250 Eye Street, NW, Washington, DC.

There being no further business, the Executive Committee Adjourned at 4:00 p.m.

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING—July 6, 2000

Will be held in the Aerospace Industries Association Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

AGENDA

10:00-10:15	Welcome and Introduction	Jim Sinnett (Boeing)
10:15-11:00	Army Munitions Production Study Findings and Final Recommendations	George Singley (Hicks Associates) Kevin Lewis (NCAT)
11:00-11:45	Update of the DoD 5000 Rewrite and Evolutionary Acquisition Thrust	Dr. Joe Ferrara (OSD)
11:45-12:45	Break and Working Lunch: The New Applied Tech Transition Process at the AF Research Lab	Bob McCarty, AFRL
12:45-1:20	OSD Concerns and Issues with Current British Proposal to Privatize DERA	Dr. Delores Etter, DUSD (S&T)
1:20-2:00	Army ManTech Program	Dr. Bob Rohde (Army)
2:00-3:00	Industry Open Systems Steering Group Organization, Goals &Charter	Reg Varga, ISG Chair (Boeing) Kevin Lewis (NCAT)
3:00-3:30	USAF Affordable Avionics AAI Program Initiative & I-ATF Input	David "Butch" Ardis, USAF Program Manager Kevin Lewis (NCAT)
3:30-3:40	Navy R&D Conference and Systems Thinking	Bill Quinn (NCAT) Mark Gordon (NCAT)
3:40--4:15	Task Force Business • Approval of Minutes and • New Members • Chairman's Topics • Future Areas for Task Force Studies and Emphasis (OS)	Jim Sinnett (Boeing)
4:15	Chairman's Closing Remarks and Adjourn	Jim Sinnett (Boeing)

Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the
National Center for Advanced Technologies
Washington, DC

July 6, 2000

The Industry Affordability Task Force (I-ATF) Executive Committee met on July 6, 2000 from 10:00 a.m. to 3:30 p.m. to review ongoing team activities and to meet with officials of the Department of Defense. Several I-ATF Team Chairpersons attended the session: Mr. Eddie McClendon, Sustainment Team; Mr. Herm Reininga, Multi-Use Manufacturing Team; and Mr. Michael Robinson, Technology Transition Team.

Government representatives included: Dr. Joe Ferrara (Director, Acquisition Systems Management, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics), Mr. Dan Cundiff (OSD Program Manager for the Manufacturing Technology Program), Dr. Bob Rohde (Deputy Director for Laboratory Management, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology), and Mr. Bob McCarty (Executive Secretary, Corporate Affordability Council, Air Force Research Laboratory).

Mr. Sinnett (Boeing St Louis) chaired the session, which included a review of the Task Force's activities, presentations by NCAT and AIA Staff, and presentations from various OSD officials. (See Attachment 1, Meeting Attendees; and Attachment 2, Meeting Agenda)

Executive Summary:

Naval-Industry R&D Partnership Conference: The Conference is scheduled for August 9-11, 2000 at the Renaissance Hotel in Washington, DC. It is intended to promote dialogue between the Government, Industry (commercial and defense), and Academia through which the Department of the Navy can better leverage corporate research and development efforts. The conference is structured with Systems Command/Industry-centric discussion panels in the morning and 8-12 breakout sessions in the afternoons.

NCAT Munitions Study: Mr. Singley presented the results of the study. The study provides an industry view of the Army's approach to precision munitions; identifies and addresses technology, Industry, and business challenges; and identifies key elements of Industry's view of an effective precision munitions strategy. It also discusses Industry's view of appropriate definitions of precision munitions; where the Army could obtain the required additional resources to implement Industry's concepts for development and

acquisition of precision munitions; a revised munitions acquisition organizational structure, and the need to consolidate and streamline the current organic munitions base. The current DoD BPPBS, which strongly mitigates against investments (of the kind recommended by the Study) to reduce future logistics costs and also noted a need to initiate and maintain strong logistics-based requirements when considering the need for, and development of, new munitions, especially precision weapons.

DoD 5000/Evolutionary Acquisition Update: The coordination process for the new DoDD 5000.1 Directive and the DoDI 5000.2 Instruction is complete. There has been considerable "watering down" from the versions previously shown to the I-ATF. Very new programs such as the Army's Future Combat System (FCS) are already adopting the new 5000 processes. Also, Congress is showing some interest in the details of the new process. The high-level military and civilian acquisition executives are "fully onboard" the new process but there was still some confusion, skepticism, and opposition displayed at the lower levels.

Some of the new and revised features of the revised 5000 processes are as follows:

Prior to entering a development program a suitable technology readiness level (TRL) must be demonstrated. In the new 5000 documents, technology readiness means that individual component technologies are sufficiently developed to an "acceptable" level.

To help control costs evolutionary acquisition will feature increased emphasis on competition in both initial acquisition and throughout the life cycle (i.e., support). This will include public versus private competitions. I-ATF believes the emphasis should be on strategic partnerships rather than competition, especially for support of legacy systems. MOSA is an important new principle in the new DoDI 5000 process and is embraced as a strategy. It should be an essential focus area—and is, according to Dr. Ferrara. The I-ATF members agreed that evolutionary acquisition and development would never work without MOSA.

Implementation of the new DoD 5000 process include taking the high level commitment that now exists and translating it into effective acceptance at the working level within the DoD acquisition workforce. Consistent leadership from the top will be a prerequisite to acceptance—evolutionary acquisition is not a change that can be initiated or sustained from the bottom up. Also, Industry understanding of and support for the new acquisition process will be vital.

USAF Applied Technology Council (ATC) Process: The new process is proving effective in focusing research efforts and redirecting funding and manpower within the Air Force Research Laboratory and will address the problem of the large disconnects between funded 6.3 S&T programs and largely unfunded 6.4/6.5 acquisition programs. The goal is to put at least 50 percent of lab 6.3 programs into advanced technology development programs with high transition probability. The ATC is a decision making body—not advisory. Bottom line: No upfront commitment from ultimate user to fund transition and use results of S&T project—project very likely to be terminated.

Privatization of U.K. Defense Evaluation and Research Agency (DERA): The U.K. is planning to privatize a major portion of its current defense research and development facilities. The U.S. DoD and Industry has been concerned regarding many issues such as safeguarding of classified information and intellectual property (IP). Dr. Etter came before the I-ATF to thank them for their previous comments on this issue and update the members of the ATF on how the U.K. had addressed these and other concerns. The current DERA privatization proposal, which has been altered substantially from its original form in order to address some of the concerns expressed by U.S. Industry and the DoD. Dr. Etter requested feedback and input that she could carry to responsible officials within the U.K. Ministry of Defense. I-ATF feedback included:

- Political underpinnings to this proposal might require the U.K. to keep subsidizing parts of the privatized DERA in order to prevent jobs from being lost. This would provide an unequal playing field for U.S. companies to compete.
- The I-ATF was not comfortable with how the new organization would handle exiting commercial secrets, intellectual property, and classified information. They pointed out the new DERA would have 9000 employees with an extremely large amount of "legacy" IP from U.S. firms.
- Electronic warfare, electromagnetic surveillance, and low observables RDT&E should stay within the DERA functions retained by the MoD.
- A reporting mechanism should be developed so that the new DERA publicly disclosed its clients when any RDT&E efforts involving militarily sensitive areas were to be undertaken.
- All information dealing with the Joint Strike Fighter should be excluded from the new DERA until source selection has been accomplished—and maybe beyond.
- Extremely well thought out firewalls between the new DERA and its future clients and between various new DERA entities/business lines need to be developed to protect existing and future IP. This effort needs to be joint with the U.S. For the future DERA must be considered a potential competitor—IP must be protected.

Army Manufacturing Technology Program: The Army program is the only one whose size meets current congressional guidelines. The Army requires support from an acquisition program manager (in the form of funding) to initiate a new manufacturing technology project. Acquisition program managers must fund at least 25 percent of each ManTech program but some ManTech programs have received 50-75 percent funding from non-ManTech sources. The funding levels projected for the Army ManTech program increase significantly through the FYDP.

Modular Opens Systems Approach Industry Steering Group: Progress in setting up the Steering Group has been slow due to limited funding and delays in obtaining that funding. Initially the Industry Steering Group activities will include identification of industry's and DoD leadership's concerns in modular open systems architecture as well as establishment of Industry/DoD goals for MOSA that address these concerns.

The USAF Affordable Avionics Initiative (AAI): The Air Force would like help from the I-ATF in putting together the initiative and getting feedback from industry on a continuous basis. The new initiative will apply to all new and legacy avionics, defined as "all electronics that flies through the sky." Most legacy platforms cannot come up with the needed investment all at once. Thus they will have to "bite off chunks that are affordable." The Air Force wants to work with Industry to get performance requirements that are open systems-oriented into contracts rather than to specify a particular open systems standard and wants:

- Industry's views as to what the Air Force should be putting into solicitations (and what kind of response they should expect) in order to provide the affordability benefits they expect to accrue from moving to opens systems for avionics systems.
- What Industry regards as model RFP language for future solicitations.
- Industry's input regarding life cycle cost/total ownership cost methodologies for identifying best value.

Technology Transition 2000 Conference: The Conference being sponsored by Dr. Etter's Office of Technology Transition November 8-9, 2000 at the Tysons Corner Hilton. The conference theme is Transitioning Commercial Technology to the Warfighter. The conference will highlight two programs: Dual Use Science and Technology (DU S&T) and the Commercial Operations and Support Savings Initiative (COSSI).

NCAT Welcome and Chairman opening remarks:

Mr. Stan Siegel, President of NCAT and Mr. Bill Quinn, NCAT Director of Programs welcomed the group and highlighted the agenda events. Mr. Sinnett welcomed the Executive Committee. The meeting commenced with a presentation from Mr. Bill Quinn, NCAT Director of Programs.

Mr. Bill Quinn (Director of Programs, National Center for Advanced Technologies) on the Naval-Industry R&D Partnership Conference:

Mr. Quinn discussed with the members of the Executive Committee the upcoming Naval-Industry R&D Partnership Conference, scheduled for August 9-11, 2000 at the Renaissance Hotel in Washington, DC. The conference is intended to promote dialogue between the Government, Industry (commercial and defense), and Academia through which the Department of the Navy can better leverage corporate research and development efforts. The conference organizers within the Navy and Marine Corps Systems Commands and the Office of Naval Research intend to focus the conference on recognizing and reducing the barriers to integrating commercial products and R&D into Naval systems. They also have indicated that they intend to use prime contractors as the main conduit to reach non-traditional firms. Between 300-500 attendees are expected. Conference registration can be readily conducted through the Internet at www.navalranddconf.com.

The conference is structured with systems command/industry-centric discussion panels in the morning and 8-12 breakout sessions in the afternoons. On the last day there will be an Industry/Academia-based panel that provides their views on a future vision of technology for the Navy. It will be followed by a high-level Navy/OSD panel, which will receive a report-out (results, conclusions, recommendations) from the chairs of the plenary session discussion panels and the breakout session chairs. The panel will take the reports for comment and action.

Mr. Quinn also requested the help of the members of the Executive Committee in supporting the conference and helping encourage industry participation and attendance. He noted that the Executive Committee Chairman (Mr. Jim Sinnett) and Mr. Herm Reininga, Chairman of the Task Force's Multi-Use Team, would be on the Aerospace Technologies Panel to be moderated by The Honorable John Douglass, President of the Aerospace Industries Association.

Mr. George Singley (President, Hicks Associates and Co-Chairman, Army Munitions Production Study Executive Committee) and Mr. Kevin Lewis (Director of Defense Research Programs, National Center for Advanced Technologies) on the Results of the Army Munitions Production Study:

At the March meeting of the I-ATF Executive Committee Mr. Lewis provided an overview of the ongoing NCAT Munitions Study being conducted for the U.S. Army. NCAT took an action from the Committee to present the complete results of the study to the Task Force at its next (July) meeting. The study has been presented to Army leadership—however the study's findings (while mainly undisputed) cannot be considered entirely palatable to segments of Army leadership.

There has been no dispute with the study's methodology or conclusions. However, the study's recommendations to the Army have caused some controversy. Although the study results have been not been unfavorably received, they have not, as of the publishing of these minutes, been approved. They are still considered sensitive and "not for public distribution." Accordingly, these minutes will only summarize the study's findings and the slides will not be posted on the NCAT website (at least until the Army decides to what extent the report can be made public).

Mr. Singley presented the results of the study. The study provides an Industry view of the Army's approach to precision munitions; identifies and addresses technology, industry, and business challenges; and identifies key elements of Industry's view of an effective precision munitions strategy. It also discusses Industry's view of appropriate definitions of precision munitions; where the Army could obtain the required additional resources to implement Industry's concepts for development and acquisition of precision munitions; a revised munitions acquisition organizational structure, and the need to consolidate and streamline the current organic munitions base.

The Executive Committee received Mr. Singley's report favorably and asked many questions regarding the conclusions and recommendations. The Committee members noted the inflexibility of the current DoD BPPBS, which strongly mitigates against investments (of the kind recommended by the Study) to reduce future logistics costs and also noted a need to initiate and maintain strong logistics-based requirements when considering the need for, and development of, new munitions, especially precision weapons.

Dr. Joe Ferrara, (Director, OSD Studies and FFRDC Programs, Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics), on an update of the new 5000-series DoD acquisition policy documents:

At the March meeting the I-ATF Executive Committee Dr. Ferrara presented an extremely well received briefing on the new DoD Evolutionary Acquisition process and its codification in the DoD 5000-series of acquisition documents. At this meeting Dr. Ferrara presented a status update briefing of the DoD 5000-series rewrite effort.

Dr. Ferrara began by noting that the coordination process for the new DoDD 5000.1 Directive and the DoDI 5000.2 Instruction is complete. They have been posted on the web and should be signed shortly. Members of the I-ATF noted there seemed to have been considerable "watering down" from the versions they saw in March. Dr. Ferrara indicated there had been some compromises and changes during the coordination process but the new documents still represented considerable change over the old versions.

In response to I-ATF members' questions, Dr. Ferrara noted the new 5000 documents were already having an effect on new programs. In particular, very new programs such as the Army's Future Combat System (FCS) were already adopting the new 5000 processes. Also, Congress is showing some interest in the details of the new process. He noted that the high-level military and civilian acquisition executives were "fully onboard" the new process but there was still some confusion, skepticism, and opposition displayed at the lower levels.

Some of the new and revised features of the revised 5000 processes are as follows:

Technology Must Be Demonstrated. Prior to entering a development program a suitable technology readiness level (TRL) must be demonstrated. In the new 5000 documents, technology readiness means that individual component technologies are sufficiently developed to an "acceptable" level. However he and the members of the I-ATF noted this does not address integration risk—that will remain a task for the development phase. There will be an independent technology assessment. The program manager will come forward with his technology readiness assessment, which the DoD S&T "Czar" can accept or reject, or somewhere in-between. The "Czar" must agree with the PM's version of "acceptable."

Time Phased Requirements. There will be time phased operational requirements documents that define the desired end-state without defining how to get to that state. In the information technology area the end-state may not even be defined—technology and acquisition will move forward a step at a time. After taking into consideration affordability, desired end-state, discreet blocks of capability, and supportability the best evolutionary strategy will be selected.

Reduction in Total Ownership Cost (RTOC). Cost will be a requirement in the operational requirements document (ORD). Several I-ATF members took issue with the concept of "cost as a military requirement." They contended that the joint staffs do not have the expertise to pick a cost target or evaluate cost against requirements for the warfighter. They felt more meaningful requirements (availability, reliability, etc.) should be the focus because these have a meaning for the user. However the point was also made that the user must understand how these and all other requirements relate to cost if for no other reason that it must be the user who weighs requirements against each other and must evaluate the "value" of each requirement.

To date, costs are only being addressed in ORDs as the total RDT&E cost and/or unit costs—total ownership costs are not being addressed. The I-ATF pointed out that TOC has to be addressed so trades can be made between performance and support costs. Up to 70 percent of all costs are in the support area and there is little evidence they are being effectively addressed, estimated, or understood. Dr. Ferrara agreed but indicated that so far only unit costs had made it into the new 5000 process.

To help control costs Dr. Ferrara indicated there would be an increased emphasis on competition in both initial acquisition and throughout the life cycle (i.e., support). This would include public versus private competitions. I-ATF members strongly professed their views that the emphasis should be on strategic partnerships rather than competition, especially for support of legacy systems. As far as public-private competitions went, committee members indicated they did not like to compete against their Government customers—because even if they win, they often end up losing.

A More Flexible Process. The old DoD 5000-acquisition process did not look at S&T. Now it does. Interoperability will be a key performance parameter within all new ORDs. A matrix of key interoperability aspects has been defined (information exchange matrix). MOSA is an important new principle in the new DoDI 5000 process and is embraced as a strategy. It should be an essential focus area—and is, according to Dr. Ferrara. The I-ATF members agreed that evolutionary acquisition and development would never work without MOSA.

The 5000 model has changed a bit since it was last briefed to the Executive Committee (March 2000). The new system still has flexible entry points. The theory is that flexible entry points will drive "good behavior," and provide more time at the beginning of the process as needed. The previous proposed milestones of "X," "C," and "D" are now "A," "B, and "C." There will be more time spent in the concept and technology development phases, which should reduce the time spent in later phases (systems development &

demonstration, production & deployment). Dr. Ferrara and the members of the I-ATF noted that the Industry and Government S&T work force at the field level does not yet realize it is now a part of the systems acquisition process.

Implementation Challenges. Dr. Ferrara indicated there are many challenges to effective implementation of the new DoD 5000 process.

- The first is taking the high level commitment that now exists and translating it into effective acceptance at the working level within the DoD acquisition workforce. The best (if slow) way to acceptance will be to apply the new process program-by-program and then be able to point to some successes.
- I-ATF members pointed out that strong and consistent leadership from the top will be a prerequisite to acceptance—evolutionary acquisition is not a change that can be initiated or sustained from the bottom up.
- The I-ATF indicated the release of the new 5000 series acquisition documents should be accomplished via a strong cover letter from Dr. Gansler or the Secretary of Defense. The letter needs to publicize and highlight the new documents and way of doing business and, most important, give the SECDEF's expectations.
- The I-ATF members also pointed out that the current administration will be gone in six months or less and that the new team may have its own ideas. The question is, will they change the 5000-series again?

Other Comments.

- The I-ATF noted (as they did at the last meeting in March) that the acquisition model still does not show processes along with products (see previous minutes). Processes are just as important as product and these need to be included.
- Also, the S&T community needs to inculcate the new process and well as the product development community. Industry understanding of and support for the new acquisition process will be vital. Once the new versions of the 5000 series are signed NCAT will send them out to members of the Executive Committee.
- Training is still an issue as regards evolutionary acquisition and the new 5000 series. Members of the I-ATF wonder who will train the Government and Industry in the new process, and indicated that the more pressing need for training was probably for government personnel. Industry is already familiar with the concepts of evolutionary acquisition—It is the way much of commercial product development is conducted and the Industry equivalent of S&T usually has a strong product development connection. Dr. Ferrara said the Defense Systems Management College has been a part of the DoD 5000 revision process and would help ensure the various defense acquisition curricula would be updated properly.

Mr. Bob McCarty (Executive Secretary, Corporate Affordability Council, Air Force Research Laboratory) on the New Applied Technology Transition Process at the Air Force Research Laboratory:

Mr. McCarty presented a briefing on the "Applied Technology Council: A Process to Improve Technology transition." He pointed out the inclusion (relatively recent) of "affordable" in the AFRL mission statement: "To lead the discovery, development, and integration of *affordable* (emphasis added) warfighting technologies for our air and space forces." He then went on to outline several thrust areas such as Space Superiority, Precision Strike, Information Dominance, Aircraft Sustainment, Aircraft Protection, and Agile Combat Support. (Comment: Note that two of the six areas are primarily directed to reducing logistics support and reducing RTOC.) He indicated these thrust areas were proving very effective in focusing research efforts and redirecting funding and manpower within the AFRL.

The new Applied Technology Council (ATC) process is to be a solution to the problem of the large disconnects between funded 6.3 S&T programs and largely unfunded 6.4/6.5 acquisition programs. The goal is to put at least 50 percent of lab 6.3 programs into advanced technology development programs with high transition probability. This means:

- No ATD will be commissioned without a (user) budget commitment to transition.
- Obtaining user commitment and greater understanding among Labs/SPOs/Users on "what is possible" is goal and payoff.

Interesting characteristics of the Air Forces Applied Technology Council process included:

- Recurring participation in the technology evaluation process at senior (flag, up to three star) levels is mandatory on both acquisition and user sides
- The ATC is a decision-making group—not advisory
- ATC process focuses on advanced technology demonstrations (ATDs)
- Technology Readiness Levels (TRLs) not yet a feature of the process
- Warfighting commands reluctant to insert funding wedge into their POMs for transition (the FY2002 POM will measure of their ability to fund transition)
- Results of ATC process will be seen by AF Chief of Staff and AF Secretary

During a discussion of how projects were ranked within the Air Force's ATC evaluation cycle it was noted that sometimes a promising cross-cutting technology program will be ranked undeservedly low because no one command will step up to funding/supporting the program. It was also noted by the Executive Committee members that this happens almost as often in Industry settings.

Members of the ATF noted they would like more information from AFRL on how they can be involved in the ATC process. Mr. McCarty indicated he would provide an answer through NCAT for distribution to the members if the I-ATF.

Dr. Delores M. Etter (Deputy Under Secretary of Defense for Science and Technology) on the Status of the DoD Evaluation of the United Kingdom's Proposal to Privatize the Defense Evaluation and Research Agency:

The U.K. is planning to privatize a major portion of its current defense research and development facilities. The U.S. DoD and industry has been concerned regarding many issues such as safeguarding of classified information and intellectual property (IP). Dr. Etter came before the I-ATF to thank them for their previous comments on this issue and update the members of the ATF on how the U.K. had addressed these and other concerns. Dr. Etter described the current DERA privatization proposal, which has been altered substantially from its original form in order to address some of the concerns expressed by U.S. industry and the DoD. The DoD has supported the latest concept but still has serious concerns. Dr. Etter indicated the original proposal has evolved to a point that "in general" the U.S. can live with it. The U.K. is trying to implement the new privatized DERA quickly. It will operate on a "for profit and privatized" business model, not as the U.K. equivalent of an FFRDC. Selling off the old DERA (like an IPO, stock will be offered for sale, with proceeds accruing to the government in this case as the "seller") is intended to make a lot of money for the British treasury. She noted:

- All laboratories and ranges (except chem bio) will be privatized. They will be conducting tests (and perhaps gaining access to and knowledge of IP thereby) for all companies.
- That the new privatized DERA plans to make money in each line of business (whether that be test ranges, labs, or other research). If it cannot make a particular line of business pay its way then the line will be abandoned.
- The British Government retained a veto over DERA business decisions for the foreseeable future. Royalties and patents generated by DERA will be handled just as a commercial firm does now.
- The new DERA will be afforded a "preferred position" as a supplier to MoD for "a while." The U.S. wants this period to be both defined and as short as possible and the U.K. Government wants a longer time. This is a politically sensitive issue in the U.K. (i.e., jobs).
- There will be no constraints on the new privatized DERA in bidding for defense work.
- The existing U.K. defense companies are violently opposed to this "privatized DERA" concept but the U.K Government is not listening to them.

Dr. Etter then requested feedback and input that she could carry to responsible officials within the U.K. Ministry of Defense.

Mr. Sinnett indicated the Task Force was very appreciative of this and other chances to comment on the U.K.'s proposal and provide input into the DoD's response. Members of the I-ATF then offered their comments as follows:

- There was considerable concern as to what the U.K. would do if all or parts of the spun off DERA were to fail and how DERA would deal with the need to "shed" excess employees (many of whom would retain U.S. Industry's IP in their heads). Mainly ex-civil servants who do not have a business background and are not accustomed to competition would staff these new "firms." It was noted the political underpinnings to this proposal might require the U.K. to keep subsidizing parts of the privatized DERA in order to prevent jobs from being lost. This would provide an unequal playing field for U.S. companies to compete.

- The I-ATF was not comfortable with how the new organization would handle exiting commercial secrets, intellectual property, and classified information. They pointed out the new DERA would have 9000 employees with an extremely large amount of "legacy" IP from U.S. firms. They also noted that while the British have an "Official Secrets Act," IP would not necessarily be protected. It was suggested that the Official Secrets Act specifically be applied to commercial IP acquired by the old DERA and supplied to the new privatized DERA personnel. A "non-disclosure" agreement should be signed individually by all 9000 employees of the new privatized DERA and this agreement should be reviewed (not simply be the traditional one) by the U.S. Linked to the non-disclosure agreement and the Official Secrets Act should be the creation of awareness of the ethical problems and new imposed restrictions that apply to all of the new privatized DERA employees. This will require an extensive education and training program.

- The I-ATF members indicated that they felt electronic warfare, electromagnetic surveillance, and low observables RDT&E should stay within the DERA functions retained by the MoD.

- The ATF was also not confident, based on what they knew; that the new DERA would not work with countries with which the United States was not comfortable. Dr. Etter indicated she thought the U.K. government's "Golden Share" would prevent this. (Note: As long as the U.S. Government and the U.K. Government continued to agree regarding the character of various countries.) However, there might be relatively minor research efforts with other countries as the client that would not come to the attention of either government. A reporting mechanism should be developed so that the new DERA publicly disclosed its clients when any RDT&E efforts involving militarily sensitive areas were to be undertaken.

- All information dealing with the Joint Strike Fighter should be excluded from the new DERA until source selection has been accomplished—and maybe beyond.

- Extremely well thought out firewalls between the new DERA and its future clients and between various new DERA entities/business lines need to be developed to protect existing and future IP. This effort needs to be joint with the U.S. For the future DERA must be considered a potential competitor—IP must be protected.

Dr. Robert S. Rohde (Deputy Director for Laboratory Management, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology) on the U.S. Army's Manufacturing Technology Program:

Dr. Rohde gave a presentation on the recent history and the current status of the Army Manufacturing Technology program. The Army's program used to be small and in some disarray. However it has rebounded and is now the only one whose size meets current congressional guidelines. He began by noting that the Army requires support from an acquisition program manager (in the form of funding) to initiate a new manufacturing technology project. However, in most ways the ManTech program is currently not treated as a mainline RDT&E program—rather it is regarded as an "outlier."

The funding levels projected for the Army ManTech program increase significantly through the FYDP. While this is good news, a review of historical funding trends shows the program is still down 70-80 percent from funding levels of the mid-1980s, expressed in constant year dollars. Dr. Rohde indicated it would be worthwhile to find out if industry was picking up the slack through their IR&D programs. This is an important question but the answer is currently unknown. The members of the I-ATF expressed doubt that a significant portion of the shortfall (compared to the 1980s funding level) was being picked up by industry. In any case, much of what Industry calls "ManTech" is not allowable as an IR&D expense.

The way the Army funds and manages its ManTech program includes these features:

- The program/project selection process must be and is approved by Army leadership
- Acquisition program managers must fund at least 25 percent of each ManTech program
- Some ManTech programs have received 50-75 percent funding from non-ManTech sources

Members of the I-ATF indicated they perceived that both the Army and the other services were missing an understanding and lacked appreciation for how much a properly executed ManTech program could be used to improve supportability—the leverage is potentially very high. However, the I-ATF as a whole also noted the very evident turn-around for the Army ManTech program. Dr. Rohde has been able to raise the visibility of the program within the Army and the process the Army uses to evaluate the program is receiving considerable attention from the other services.

Mr. Reginald (Reg) Varga (Director Open Systems Architecture, The Boeing Company) on the Industry Open Systems Steering Group's Organization, Goals, and Charter:

Mr. Varga gave a report on the initial results of the effort to set up a Modular Open Systems Approach (MOSA) Industry Steering Group at the request of the DoD Opens Systems Joint Task Force (OSJTF). Progress has been slow due to limited funding and

delays in obtaining that funding. Initially the Industry Steering Group activities will include identification of industry's and DoD leadership's concerns in modular open systems architecture as well as establishment of Industry/DoD goals for MOSA that address these concerns.

Currently there is an extensive list of interested participants, including the major aircraft and avionics manufacturers. All are strongly committed and interested—just waiting for funding. I-ATF members suggested that Honeywell and General Dynamics (specifically GD Systems) be contacted to see if they would be willing to participate as well. In particular Honeywell would be a good participant because of the "ubiquitousness" (new word) of the commercial systems with which they are involved.

Because of the very limited funding available from the OSJTF and its incremental nature, the efforts originally proposed to be accomplished through the I-ATF has been divided into several phases. The first phase (Phase Zero) will involve the establishment of the Steering Group and participation of expertise from the I-ATF. Meetings with various Industry and Government representatives will be held to identify the optimum MOSA ISG structure. The ISG will then be convened to develop consensus of the detailed structure of the ISG, create an ISG charter for all participants, and identify key issues for future ISG analysis and review.

The members of the I-ATF suggested:

- The members of the MOSA Steering Group be flexible on the issues of organizational structure and approach until the results of Phase Zero are defined and a better idea of what the OSJTF is looking for is established.
- There has been a DSB study on this subject (1998, chaired by Wayne L. O'Hern). This would be a good source of data for the MOSA ISG and they should obtain a copy of this report.
- The efforts of the MOSA ISG should be coordinated with what is going on in the Air Force's Affordable Avionics Initiative (AAI)—especially with regard to I-ATF efforts in support of the AAI.
- The study should open with input briefings from the AAI and OSJTF organizations on what has been done so far and what their views are as regards the issues and possible solutions.

Mr. David G. "Butch Ardis (USAF Affordable Avionics Initiative (AAI) Program Manager, Aeronautical Systems Center, Air Force Materiel Command) on the Affordable Avionics Initiative:

Mr. Ardis gave a presentation on the new AAI and received feedback from the members of the I-ATF. The Air Force would like help from the I-ATF in putting together the initiative and getting feedback from industry on a continuous basis. First of all, the new initiative will apply to all avionics, defined as "all electronics that flies through the sky."

The key to evolutionary evolution in general and particularly with respect to avionics will be feedback from the user. Discussion between Mr. Ardis and the Executive Committee moved forward as follows:

- The Defense Science Board recommended that the block upgrade cycle be tailored to the technology refresh cycle. The AAI seems to be indicating that there will be an active attempt to apply this recommendation to avionics. (Note: The electronics/avionics technology refresh cycle may be somewhat shorter than can be accommodated by the defense acquisition process, even under the most favorable assumptions, unless industry is given full configuration control over avionics systems.)
- Mr. Ardis was asked if there was not a need for quite significant front-end investment to implement the process. Mr. Ardis agreed but indicated that as a matter of fiscal reality most legacy platforms cannot come up with the needed investment all at once. Thus they will have to "bite off chunks that are affordable." This will result in a system modernization cycle that will be much longer than the potential modernization time if it were more closely matched to the technology refresh cycle.
- Members of the I-ATF indicated their position that the AAI needed to be a part of an agreed-to standard for open systems. The DoD is no longer big enough to create/set a standard. Rather, they need to become part of an overarching commercial standard. Mr. Ardis agreed but said that it needed to happen through the implementers of defense systems—the Defense Industry. The members thought more of a "users architecture" rather than a "manufacturers architecture" was needed.
- Mr. Ardis indicated that open systems would be the key to affordability. The Air Force wants to work with Industry to get performance requirements that are open systems-oriented into contracts rather than to specify a particular open systems standard (which would be changed within five years anyway). The requirements do not have to be object oriented and solutions do not need to be specified. Rather, performance attributes need to be specified. The Air Force wants:
    - Industry's views as to what the Air Force should be putting into solicitations (and what kind of response they should expect) in order to provide the affordability benefits they expect to accrue from moving to opens systems for avionics systems.
    - What industry regards as model RFP language for future solicitations.
    - Industry's input regarding life cycle cost/total ownership cost methodologies for identifying best value.

Mr. Ardis indicated the Air Force wanted Industry's input into the roadmaps that will be needed for both new and legacy systems within the affordable avionics initiative (except JSF). He indicated roadmaps would be a part of each RFP but he urged Industry participants to be creative and offer changes to existing roadmaps. Also, the roadmaps would not be cast in concrete and would be open to later changes where it made sense.

Mr. Siegel urged the members of the I-ATF to be strongly involved in the AAI study. It has the potential to have a major impact in how the Air Force, in fact the whole DoD, does procurement and sustainment of avionics for new and legacy systems. Technology, sustainment, and contracts people from industry will all be needed on the study.

Depending on the availability of Air Force funding and the vagaries of the procurement system the study could kick-off as early as August. NCAT will continue to recruit Industry participants and will report on the status of the effort at the next I-ATF executive committee meeting in October.

Mr. Mark Gordon (NCAT Director of Education Research Programs) on the Technology Transition 2000 Conference:

Mr. Gordon gave a brief presentation of the November Technology Transition 2000 Conference being sponsored by Dr. Etter's Office of Technology Transition November 8-9, 2000 at the Tyson's Corner Hilton. The conference theme is Transitioning Commercial Technology to the Warfighter. The conference will highlight two programs: Dual Use Science and Technology (DU S&T) and the Commercial Operations and Support Savings Initiative (COSSI). DU S&T focuses on technology development primarily for new programs while COSSI inserts commercial technology into legacy systems. These programs represent over $500M in OSD and service funding through 2001.

Mr. James M. Sinnett (Chairman of the Executive Committee of the Multi-Association Industry Affordability Task Force and Vice President Strategic Development, The Boeing Company) on the Chairman's Assessment and Other Topics:

After a brief discussion the minutes from the previous meeting were approved. Three new members of the Executive Committee were also approved (Mr. Curt Adams, AFCEA; Mr. Donald Nilson, Lockheed Martin Aeronautics Company; and Mr. Michael Smeltzer, Primex).

Possibilities for topics/issues that could be addressed by the Industry Affordability Task Force in the future were discussed.

- Take a look at what is going on in manufacturing technology-type areas with particular emphasis on affordability issues and benefits.

- Total ownership cost needs to be addressed further. Transition of technology and affordability need to be much better linked—and the real problem for affordability is legacy systems. Once out of the S&T environment, a substantial issue is how TOC and sustainment costs can be dealt with, whether it is through open systems, modernized software, manufacturing technology, etc. Billions of dollars are being spent on the sustainment of legacy systems with no relief in sight. There needs to be

some fundamental changes or the legacy sustainment issue will cripple the ability to develop and acquire new systems.

- There are/were some similar issues from which lessons might be drawn in the interconnection and upgrade of CAD systems. CAD systems are essential to successful evolutionary systems with their emphasis on rapid changes and reducing cycle times and (hopefully) simulation based acquisition. The I-ATF needs to hear from someone who has a perspective of the various CAD systems and who can report on the state of the art in CAD, what CAD systems companies are using, and how legacy CAD systems can be interfaced (or not) with new systems. CAD is even more important as the Industry and DoD start moving towards modular open systems architecture and object oriented design.

- Members of the I-ATF indicated their strong interest in following the DoD 5000 story as it is implemented, especially how (and if) the lower levels of the DoD acquisition community are buying in to the new process. It was suggested that NCAT needs to push the idea of developing and providing a training program to "train the trainers" in the new evolutionary acquisition process.

- It was pointed out that the export control process is driving military and civilian integration apart and that this might be an area for involvement by the I-ATF. However, Mr. Siegel indicated that the Industry Associations were extensively working the issue and it could be left to them.

- Mr. Siegel, President of NCAT, indicated that he had been disappointed in some of the issues that had shown promise for effective involvement of the I-ATF. The simulation-based acquisition area "went down in flames" as the responsible DoD offices/organizations were disestablished. The DoD SBA effort is in total disarray and he sees considerable fragmentation in how industry is dealing with this area. There has been very much less funding for the planned open systems efforts of NCAT and the I-ATF due to budget problems on the part of the sponsoring organizations. The upcoming change in administration may cause problems or result in new opportunities. Obviously, issues and areas of emphasis will change which may result in current I-ATF issues being de-emphasized. On the other hand there should be opportunities to introduce the new management team to the resources offered by the I-ATF in addressing their areas of concern.

There being no further business, the Executive Committee Adjourned at 3:15 p.m.

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING—October 18, 2000

Will be held in the Aerospace Industries Association Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

AGENDA

9:30-9:35	Welcome and Introduction	Jim Sinnett (Boeing)
9:35-10:15	Affordability White Paper	Dan Cundiff (OSD)
10:15-10:45	DOD 5000 update	Joe Albergo (OSD)
10:45-11:00	Break	
11:00-11:30	Export Controls	Tanya Mottley (DOC BXA)
11:30-12:15	PEO/SYSCOM	Jay Mandelbaum (OSD)
12:15-1:00	Working Lunch Status of Current NCAT projects • Affordable Avionics Initiative • MOSA • Navy R&D Partnership Conference • Technology Transition 2000 Conference	Kevin Lewis/Mark Gordon
1:00-1:30	Current Congressional Outlook	Jon Etherton (AIA)
1:30 – 2:15	Civil Military Integration	MAJ Gregory Redick (OSD)
2:15-2:30	Break	
2:30-3:30	Task Force Business • Future Areas for Task Force Studies and Emphasis • Transition Teams	Jim Sinnett (Boeing)
3:30	Adjourn	

Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the
National Center for Advanced Technologies
Washington, DC

October 18, 2000

The Industry Affordability Task Force (I-ATF) Executive Committee met on October 18, 2000 from 9:30 a.m. to 3:15 p.m. to review ongoing team activities and to meet with officials of the Department of Defense. Three ATF Team Chairpersons attended the session: Mr. Stephen Olson, Simulation Based Acquisition Team; Mr. Herm Reininga, Multi-Use Manufacturing Team; and Mr. Michael Robinson, Technology Transition Team.

Government representatives included: Mr. Joe Albergo (Office of the Secretary of Defense), Mr. Dan Cundiff (Office of Technology Transition, Office of the Secretary of Defense); Major Gregory Redick, USAF (Office of the Secretary of Defense); and Ms Tanya Mottley (Bureau of Export Administration, Department of Commerce).

Mr. Sinnett (Boeing St Louis) chaired the session, which included a review of the Task Force's activities, presentations by NCAT and AIA Staff, and presentations from various Department of Defense and Department of Commerce officials.

Executive Summary:

- OSD affordability activities were briefed. There is an annual OSD Affordability Program Review where the Services and DARPA bring about 20 programs forward for review. The review is intended to identify best practices and lessons learned. Dr. Etter is now formally providing the results back to the Service and a summary is also provided to the Under Secretary for Acquisition. It was noted that the most important concept seemed missing from the affordability review process--technology transition. OSD is trying to leverage what each service is doing in regard to affordable technology transition. The technology readiness level (TRL) approach has been included in the new DoD 5000-series.
    - The Army is making a very good start in incorporating the TRL process.
    - The Navy has converted to a "Future Naval Capabilities" approach to guide its S&T program and has made progress in devising measurement tools to evaluate its affordability program.

- The Air Force has adopted an "Applied Technology Council" method, which places a high emphasis on technology transition. All USAF ATDs are being evaluated by the ATCs. 10-20 percent of the ATDs lost their funding when the first review by the ATCs showed insufficient user support.

- An update of the new DoD systems acquisition process was presented. The new DoD 5000 policy documents will have multiple process paths--there will be several points at which systems acquisition can begin, depending on the readiness of the underlying technologies and other factors. Time phased requirements will guide the new evolutionary strategies. Technologies must be proven and a validated ORD completed before systems level work begins. Under the EA approach, the new system can move forward into system development and demonstration as long as a militarily useful capability will result. The "missing" technologies can continue in the concept & technology development phase, and then be incorporated in the next block. As a rule of thumb, under EA, the time from Milestone B to Milestone C should be five years for major systems (assuming full funding).

- Ms. Mottley (Dept of Commerce) discussed various export control issues with the members of the I-ATF Executive Committee. Most of the concerns regarding technology transfer and export controls emanate from the DoS rather than the DoC. However lengthy delays can arise from DoS vs. DoC jurisdictional issues. There are two lists of interest relative to Export Control matters. These are the "Dual Use" list (DoC) and "Munitions Control" list (administered by DoS). It could be two more years before resolution will be obtained between the DoS and DoC with respect to export controls on launch vehicles, satellites, etc. The DoC has a "Transportation and Related Technical Equipment Technical Advisory Committee" which covers avionics, navigation systems, and other aerospace systems. It has considerable influence on dual use controls within the DoC. There is low representation from Industry on this committee—DoC would welcome more Industry participation.

- The most recent PEO/SYSCOM Conference was held October 11-13, 2000 at Fort Belvoir, Virginia. Over 400 Industry and DoD/Service executives attended (about 80 from Industry). Recently, there has been relatively less participation in the conference by the major systems command commanders and program executive officers. Also, while some high-level DoD acquisition executives participated in the conference as speakers or panel members, they did not attend the full conference. Overall, there should be more emphasis on PEO/SYSCOM Conference attendance from both Government and Industry program offices—there are too many staff attending. *Action: NCAT will emphasize attendance from Industry program managers when inviting industry attendees to PEO/SYSCOM.*

- NCAT and the I-ATF are doing an Affordable Avionics Initiative (AAI) project on behalf of the Aeronautical Systems Center. Industry participation in this activity is being solicited through and coordinated with the I-ATF. Three issues have been identified: Business incentives, source selection criteria, and affordability attributes.

- Another new project for NCAT is the I-ATF sponsored Industry Steering Group on Modular Open Systems Approach. During the initial phase the ISG will review and develop consensus on the structure for the ISG, create a charter, and identify key issues for examination. The initial funding is very limited but the client has indicated there will be substantial follow-on funding in the New Year.

- The current congressional picture was briefed. In many areas Congress added money to the President's budget. Highlights of the Appropriations Bill included:

  - Almost $1B extra appropriated for various Aerospace R&D programs.
  - Substantial increases (about $51M) for the Manufacturing Technology program (however, many of the increases were for earmarked projects).
  - Full funding for the Dual Use Science and Technology (DU S&T) and Commercial Operations and Support Savings Initiative (COSSI) programs.

  The Authorization Bill contained extensive language in the areas of ManTech, S&T Management (especially for the Air Force), and acquisition reform issues.

  - About half the increase in the appropriation for ManTech was authorized.
  - The drop in DoD S&T funding concerned the Committee, especially the Air Force, which used to have the largest S&T budget of the Services but now has the lowest. The Air Force was required to conduct a one-year review of S&T and was effectively placed on notice regarding funding levels for S&T.
  - There will be a GAO review of Service S&T issues and funding.

- A presentation on Civil Military Integration issue (especially IPR) was received. The DoD realizes this issue is of particular concern to both commercial and defense industry. A Rapid Improvement Team (RIT) is working this issue. One of the initiatives involves the preparation of a "layman's guide to IPR." It will be for the use of contracting officers, program/project managers, etc. Even large "main line" defense firms are doing venture capital-type efforts as they "mine for technology." They want nothing to do with DoD-unique requirements (especially in the area of intellectual property). There is an active, ongoing effort to establish a comprehensive Service/OSD coordinated position regarding all aspects of export controls. This will then be further coordinated (with the Departments of Commerce and State.

- Mr. Sinnett initiated a discussion on potential future Task Force activities by noting that the Task Force provided a platform from which to address intellectual property and export control issues. Also, the SBA effort within the Office of the Secretary of Defense is in disarray in terms of organizational functions, points of contact, and funding. By contrast, the Services are moving forward on SBA activities but their activities are not necessarily coordinated and there is some duplication and some gaps in the research being done and the architectures being formulated. If OSD does not provide a strong central focus and organizing effort then, while Industry will move forward, the whole SBA movement will necessarily be fragmented.

NCAT Welcome and Chairman Opening Remarks:

Mr. Stan Siegel (President of NCAT) and Mr. Bill Quinn (Director of Programs for NCAT) welcomed the members of the Executive Committee. Mr. Sinnett, Chairman of the Executive Committee, added his welcome remarks and formally opened the meeting by reviewing the planned agenda. He noted the emphasis over the past meetings on acquisition reform issues, and in particular, the combination of the Evolutionary Acquisition Initiative and the rewrite of the DoD 5000 series of acquisition documents. He noted that a considerable amount of work, with many individual accomplishments, had taken place over the past eight years. He indicated the current challenge, which would have a considerable payoff, would be to get the new Evolutionary Acquisition system established and implemented. The fact of a new Administration coming into office in January adds to both the challenge and the opportunity to move EA and acquisition reform along.

Mr. T. Daniel (Dan) Cundiff (Associate Director for Manufacturing Technology and Affordability, Office of Technology Transition, Office of the Deputy Under Secretary of Defense (Science and Technology)) on Affordability in Science and Technology:

Mr. Cundiff centered his presentation on the DoD Affordability Task Force Activities, selected Service best practices, and the upcoming Affordability White Paper. He noted there is a dichotomy between affordability and science and technology that has not been easy to bridge. However, he indicated his office will "keep the pressure on" at the staff level, regardless of the change in administration, until told to quit. He also noted the DoD ATF was chartered in 1995 with the mission of improving the strength of affordability in S&T programs. ATF membership is key—as it must represent both the providers and the users of S&T. Although ManTech issues dominated the ATF in the beginning this has changed over time. After a review of the genesis of the affordability thrust, and the progress the affordability thrust has made since 1995, he discussed the results of this year's OSD Affordability Review, held in May 2000.

Mr. Cundiff's office sponsors a yearly Affordability Program Review. The Services and DARPA bring about 20 programs forward for review. The review is intended to identify best practices and lessons learned. While only a limited number of programs are reviewed each year, it adds up over several years. Programs that have done particularly well (or not well) are invited back in subsequent years. The review is conducted as a collegial process, and results from the review are considered advisory rather than directive, in order to encourage honest participation. The last one was held in May and Mr. Sinnett participated. Dr. Etter is now formally providing the results back to the Service and a summary is also provided to the Under Secretary for Acquisition.

The Office of Technology Transition also sponsors annual Affordability Conferences. The next one (March 12-13, 2001) will include Service Panels presenting and discussing lessons learned regarding how S&T Affordability Programs are being managed and

implemented and a commercial industry technology transition lessons learned panel as well.

I-ATF members noted the most important concept seemed missing from the affordability review process—technology transition. Mr. Cundiff indicated transition was not explicitly on his charts but it is implicit in the process and is being emphasized more and more—with one example being the draft White Paper on Affordable Technology Transition (a copy was provided to each member of the I-ATF present for their comment). He noted that even more efforts needed to be made to ensure transition received a higher emphasis.

Mr. Cundiff's office is trying to leverage what each Military Service is doing in regard to affordable technology transition. The technology readiness level (TRL) approach has been included in the new DoD 5000-series.

- The Army is making a very good start in incorporating the TRL process. When asked if the TRL approach would be applied to process as well as product technology Mr. Cundiff answered that that was the intent—but they were not there yet. He also indicated the TRL approach needed to be used in the ManTech area as well.
- The Navy has converted to a "Future Naval Capabilities" approach to guide its S&T program and has made progress in devising measurement tools to evaluate its affordability program.
- The Air Force has adopted an "Applied Technology Council" method, which places a high emphasis on technology transition. S&T projects are evaluated in terms of the level of user interest/support and amount of transition funding committed by the user. All advanced technology demonstrations are being evaluated by the ATCs and funding is being allocated accordingly. 10-20 percent of Air Force's ATDs lost their funding as a result of the first review by the ATCs showing insufficient user support.

Mr. Joe Albergo (Program Analyst, Office of the Director of Acquisition Resources and Analysis) on an Update of the New 5000-series DoD Acquisition Policy Documents and the Evolutionary Acquisition Initiative:

Mr. Albergo presented an update of the new DoD systems acquisition process, continuing the series of updates that have been presented by Dr. Ferrara and Mr. Ric Sylvester in past meetings of the I-ATF. He began by giving the current status of the new DoDD 5000.1 and the DoDI 5000.2. Both have been signed but have not been dated or issued (but indicated it would be "any day" for both). The implementing regulation for these documents, DoD 5000.2R, has not been signed. When sent out for coordination over 600 pages of comments were received. The draft has been revised and the Defense Acquisition Working Group is reviewing the new draft. Dr. Gansler would like to have the new regulation signed by December 29, 2000.

Mr. Albergo noted that there is a possibility that there will not be a wholly new version of the 5000.2R issued. Rather, if a new version cannot be agreed-to within a reasonable

period, then the current edition will be updated just sufficiently to make it compatible with the new 5000-series Directive and Instruction. Either way, the Services strongly desire that the implementing regulation be issued soon, given that the new Instruction and Directive have been signed.

The new DoD 5000 policy documents will have multiple process paths—there will be several points at which systems acquisition can begin, depending on the readiness of the underlying technologies and other factors. Time phased requirements will guide the new (preferred, but not mandatory) evolutionary strategies. A minimum number of mission-oriented key performance parameters will be used in order to facilitate cost/performance tradeoffs. Technologies must be proven and a validated ORD completed before systems level work begins (Milestone B). A full systems demonstration will have to be completed before the low-rate production commitment is made. There will be only three major activity phases: technology development, system development, and production. Technology development and system development will be much more firmly separated than within the current acquisition system, and the emphasis will be on "mature" technologies. The will be a much greater emphasis on interoperability in order to accommodate the anticipated "family of systems" and "system of systems" approach.

Mr. Albergo noted that under the EA approach, the new system can move forward into system development and demonstration (Milestone B) as long as a militarily useful capability will result. The "missing" technologies can continue in the concept & technology development phase, and then be incorporated in the next block. Thus a system might be managed so as to be in two different phases (concept & technology development and system development & demonstration) at the same time, depending on the technologies and the block.

Also, under the new EA system, timelines are totally flexible, depending on the function and the system. Timelines should be shorter under EA than the current system. As a rule of thumb, under EA, the time from Milestone B to Milestone C (entry into system development and demonstration, which includes system integration and system demonstration) should be five years for major systems (assuming full funding). The new system abhors the concept of "science projects" during acquisition—the technology must be ready ahead of time.

Members of the I-ATF offered the following comments:

- Is anyone other than OSD really taking interoperability seriously? It seems the Services are still in the "stovepipe" mode and don't seem to have the same commitment as OSD to interoperability concepts (especially when it might cost money). What is being done early in the acquisition process to enforce interoperability requirements and test interoperability perfomance? Mr. Albergo indicated it was a lot easier to do evolutionary acquisition and have interoperability in the C4I world. Although the worst interoperability problems have been in this area they have made the most progress, both in technologies and process. Interoperability, when it can be obtained through upgraded software, is much easier to obtain and enforce.

- The new system must keep room within it for exploitation of both revolutionary and evolutionary technologies.
- Evolutionary acquisition offers considerable benefits in terms of cycle time. However, these benefits assume full funding. Not all, or even the majority, of the current cycle time problems have resulted from technology shortfalls. Many of the lengthy cycle time examples have resulted from shortfalls in funding—which were then accommodated through program stretchouts.
- Under evolutionary acquisition (EA) early production systems should always be upgraded to the "final" configuration. Mr. Albergo indicated this was the intent—pressure from the users and maintainers will require it. Otherwise early versions of the system would remain in the inventory even though they did not meet the evolved requirement. Also, there would be logistics support problems, as systems with early versions of technology require different maintenance and spares than more recent versions of the "same" evolved system. However, he also pointed out that this is an affordability issue and resource requirements could affect the decision of whether to upgrade earlier blocks of new systems, upgrade them, or continue to operate them.
- Evolutionary acquisition will be a tremendous improvement if and when it is fully and properly implemented. However, it is not nearly the cure for all of the ills that affect the current defense acquisition system. Federal procurement regulations, failure to adopt commercial business practices, export and intellectual property restrictions, etc., are all examples of areas that require modification or wholesale revision before the defense acquisition system can be restored to health and product/technology cycle times reduced.

Ms. Tanya Mottley (Director, Strategic Trade Division, Bureau of Export Administration, U.S. Department of Commerce) on Export Controls:

Ms. Mottley discussed various export control issues with the members of the I-ATF Executive Committee. She began by introducing her agency as one that promotes trade and noting that the DoD, the Department of State (DoS), and the Department of Commerce (DoC) all have roles in the export control process.

Committee members indicated to Ms. Mottley that Export Controls was very much a "hot button" issue with Industry in general and the Aerospace Industry in particular. As administered by the U.S. Government, export controls are a considerable impediment to the incorporation of commercial technology into DoD systems. A particular worry of commercial and defense firms alike is the possibility (probability?) that commercial technologies incorporated into DoD weapon systems will be themselves subject to export controls intended for exclusively or primarily defense technologies. Also, because of the way the export control statutes and policies are written and interpreted, there are stringent conditions on who can work on the technology development—a potentially severe constraint, given the number of foreign nationals employed within both defense and commercial industries. Indeed, given the global nature of modern commercial firms much of the technology development may be done in countries such as India.

It was noted that most of the concerns regarding technology transfer and export controls emanate from the DoS rather than the DoC. However, lengthy delays can arise from DoS versus DoC jurisdictional issues. While there are guidelines for maximum processing time, the clock starts only when these issues have been resolved. An example was when jurisdiction over commercial satellite exports was transferred from DoC to DoS in 1996. Although the law cited only satellites it was applied by the DoS to associated products and services such as launch vehicles/services as well. Jurisdictional negotiations over satellite components have taken over 18 months to resolve in some cases.

There are two lists of interest relative to export control. These are the "Dual Use" list (DoC) and the well-known "Munitions Control" list, administered by DoS. There is some difficulty apparent in keeping these lists up to date and deconflicted in rapidly changing technology areas (e.g., information technology, electronics, etc.), which can cause additional jurisdictional delays. Also, a fundamental difference between the Department of Commerce and the Department of State is the "see-thru" rule. DoC does not use this rule, which allows a regulator to "see through" the end item into individual components. The DoC considers only the end item and does not care about components, even if they might have to be controlled when sold as individual end items in themselves.

The members of the Executive Committee asked Ms. Mottley when resolution would be obtained between the DoS and DoC with respect to export controls on launch vehicles, satellites, etc. She indicated she was not sure—It could be an additional two years. Meanwhile, the jurisdictional disputes will have to be dealt with on a case-by-case basis. Many/some of the disputes will have to be elevated to the National Security Council for resolution. Unfortunately the NSC has not been getting information from the various agencies required to resolve the disputes in a timely manner--although this is improving in the last few months.

When asked what types of items and what specific items were covered under DoC regulations, policies, and procedures Ms. Mottley indicated a list was maintained in her agency and could be reviewed at www.bxa.doc.gov. The list includes dual use, missile technology, nuclear, chemical/biological controls, other items controlled for reasons of national security, and individual lists restricting items from export to particular countries (e.g., hot section, composites, and autoclave technologies, etc.).

The members of the Executive Committee indicated they were concerned about the timelines for approval/disapproval. Ms. Mottley said that DoC is subject to an Executive Order that mandates maximum timelines (30-45 days processing time in most cases, depending on the type of item and the specific country). So far the DoC has a good record in complying with the Executive Order. She also noted the Department of State has primary jurisdiction over items designed for military use while the DoC has primary jurisdiction of items classified as "dual use." Commercial-off-the-shelf (COTS) can cause jurisdictional problems between DoS and DoC, which can add to processing time (electronic and night vision components are good examples).

In general, members of the Executive Committee agreed with the proposition put forward by one of the members that the DoC does a good job administering export controls for which it is responsible. The DoD is trying to cooperate with Industry in many areas. However, there is a large problem (which has eased some in recent months but is still severe) with the Department of State and its Munitions Control List.

In response to an inquiry as to how Industry could have an input into the DoC's export policies; Ms. Mottley indicated that the DoC has a "Transportation and Related Technical Equipment Technical Advisory Committee" which covers avionics, navigation systems, and many other aerospace-type systems. This group can and does affect policy and can also provide a "heads up" on policies that are changing. It has considerable influence on dual use controls within the DoC. It has a website (www.bxatac.doc.gov) and the DoC point of contact is Ms. LeAnn Carpenter (202-482-2583). There is currently poor representation from Industry on this committee and the DoC would welcome more Industry participation.

Dr. Jay Mandlebaum (Senior Program Analyst, Office of the Assistant Deputy Under Secretary of Defense for Systems Acquisition) on the PEO/Systems Command Commanders' Conference (PEO/SYSCOM):

Dr. Mandlebaum discussed with the members of the Executive Committee how the last conference had gone and where the PEO/SYSCOM Commanders' Conference would be going in the future in terms of structure and location. He indicated that the last one, based on preliminary analysis of conference questionnaires and informal feedback, had been very successful. The conference had been coupled with a Science and Technology Exposition sponsored by Dr. Delores Etter, Deputy Under Secretary of Defense (Science and Technology).

The past practice has been to have a PEO/SYSCOM event twice a year, alternating a full-up conference with a workshop. Attendance at each is usually more than 400 persons. Recently a pre-conference half-day of tutorial sessions had been added which has proven very successful, with more than half the conference attendees attending the tutorial events. The workshops devote about two-thirds of the time to breakout sessions where issues are worked and then report out to DoD's acquisition leadership at the end of the event. Follow-on efforts are reported on at subsequent PEO/SYSCOM Conferences as appropriate.

The most recent PEO/SYSCOM Conference was held October 11-13, 2000 at Fort Belvoir, Virginia. Over 400 Industry and DoD/Service executives attended (about 80 from Industry) as the guests of Dr. Gansler, Under Secretary of Defense (Acquisition, Technology, and Logistics). This last conference of the current administration was centered on a review of the achievements of acquisition reform and an attempt to both review and define their remaining challenges. Two panels, one consisting of the three Service Acquisition Executives and the other consisting of the heads of four major Industry associations (AFCEA, AIA, ITAA, and NDIA) were particularly effective.

The members of the Executive Committee noted that recently there had been relatively less participation in the conference by the major systems command commanders and program executive officers than when the conference started several years ago. Also, while some high level DoD acquisition executives participated in the conference as speakers or panel members but they did not attend the full conference. This can reduce the desire of influential and high level Industry members to participate. Senior DoD acquisition leadership (i.e., OSD and Service Acquisition Executives and staff members, Program Executive Officers, and SYSCOM Commanders) attendance is important to draw equivalent Industry participation.

Admiral Oliver (Dr. Gansler's deputy) indicated during the last plenary session of the most recent PEO/SYSCOM Conference that the next PEO/SYSCOM would be a 1-1/2 day event and that he would ensure the "Direct Reports" to the Under Secretary for Acquisition would be in attendance for the entire session. This would be followed by a DoD high-level off-site meeting session for which attendance would be more limited. This approach is still fluid but will be better defined by December. (Note: This may be somewhat dependent on which Administration takes over the DoD in January)

Overall, there should be more emphasis on PEO/SYSCOM Conference attendance from both Government and Industry program offices—there are too many staff. (Note: It was mentioned that the "doers" from the program offices might be too busy running their programs to take off three days to attend. It was also mentioned that the folks attending the conference really needed to hear what was going on the in the program management arena and the payoff from doing so was worth the PMs' time.)

Action: NCAT will emphasize attendance from Industry program managers when inviting industry attendees to PEO/SYSCOM. Note: Recent NCAT experience has shown that although many Industry program managers or PEO-equivalents were invited, many either declined or accepted but then dropped out at the last minute. It would appear that as in Government, Industry staff (especially in the marketing, government relations, or business development areas) has more time available, and are often located closer to the conference location, which makes it easier for them to attend the conference.

The Committee members suggested:

- Attendance by the 3- and 4-star Service systems command commanders is very important. A main session of no more than 1-1/2 days covering no more than three issues would be best to permit "high rollers" from Government/Industry to attend.
- Workshops are good for detailed looks at specific issues and problems—they should be continued. Subsequent reports on progress and/or final results are very important and should "lead off" PEO/SYSCOM conferences.
- It was mentioned that at the recent Navy CEO conference all of the Navy systems command commanders were on one panel. Each had brief introductory remarks and then there was a 90-minute Q&A session. The format worked very well and would be a good approach for PEO/SYSCOM.

- Performance-based logistics would be a great subject for a 1-1/2 day workshop. The many issues involved in this concept would provide plenty of work for many breakout sessions to do and for plenary speakers to address.

Dr. Mandelbaum concluded by saying that the PEO/SYSCOM would continue and would probably remain at Fort Belvoir. The S&T Exposition would probably be split off, as Fort Belvoir did not offer large enough facilities for large displays and exhibits.

Mr. Kevin Lewis (Director of Defense Programs, National Center for Advanced Technologies) on the Affordable Avionics Initiative and the Modular Open Systems Approach Program:

Mr. Lewis gave a presentation on the new Affordable Avionics Initiative (AAI) project NCAT is doing on behalf of the Aeronautical Systems Center at Wright-Patterson AFB, OH. A kick-off meeting was held October 3-4 at Wright-Patterson. Industry participation in this activity is being solicited through and coordinated with the I-ATF. There were twenty Industry and seven Air Force attendees. Three main issues were identified: business incentives, source selection criteria, and affordability attributes. Of these the source selection criteria were considered the most important. A follow-on session will be held at the NDIA Symposium in San Diego on October 24th.

The second new project for NCAT is the I-ATF sponsored Industry Steering Group (ISG) on Modular Open Systems Approach (MOSA). The kick-off meeting will take place November 1 at NCAT. During the initial phase the group will review and develop consensus on the structure for the MOSA Industry Steering Group, create a charter for the ISG, and identify key issues for examination by the ISG. The initial funding is very limited but the client has indicated there will be substantial follow-on funding.

Mr. Mark A. Gordon (Director of Education Programs, National Center for Advanced Technologies) on the Naval-Industry R&D Partnership Conference and the Technology Transition 2000 Conference:

Naval-Industry R&D Partnership Conference

NCAT put on this conference. The conference went well and (thanks in no small part to the I-ATF members' efforts in spreading the word) the attendance level was high (over 500 attendees). More representatives from Industry than Government attended (304 versus 221) and of the Industry attendees almost half were from commercial entities. There were 54 speakers and panel members, including Mr. Sinnett and Mr. Reininga. There were 34 exhibition booths and a total of 26 breakout sessions spread over two days. Overall comments from the attendees were excellent (outstanding conference venue and organization, etc.). Panel discussions were received very well but there was not enough time for panel members to interact with each other and the audience.

Technology Transition 2000 Conference--Commercial Technology for the Warfighter

There is another NCAT-run conference coming up in November, this one sponsored by Dr. Etter's Office of Technology Transition. This conference will showcase the COSSI and DU S&T programs. The conference theme is "Leveraging Commercial R&D for Improved Weapons Systems." Mr. Gordon requested the help of the Executive Committee members in publicizing this conference.

To encourage attendance for this "first of" conference the fee is being held down to $150. This conference is intended to draw attention to the DU S&T and COSSI programs. The COSSI program, for example, is barely drawing enough proposals from Industry to fully commit its funding each year. The conference will feature a "best practices" panel for both the COSSI and DU S&T programs, as well as Industry and Congressional perspective panels. A presentation will be made on how the COSSI program will be structured and the award procedures that will be used for the next two years. Mr. Sinnett and Mr. Reininga noted they would be participating on the industry perspectives panel.

Mr. Jon L. Etherton (Assistant Vice President for Legislative Affairs, Aerospace Industries Association of America) on the Current Congressional Outlook:

Mr. Etherton presented a briefing to the Executive Committee on the current congressional picture with particular attention to the status of legislative programs in the current Congress of particular interest to the Committee (DU S&T, ManTech, COSSI, acquisition reform, export controls, etc.). He noted that the Appropriations Bill had "leapfrogged" the Authorization Bill, which was very unusual (i.e., the Appropriations Bill had been passed by Congress and signed by the President while the Authorization Bill was still waiting final Conference action). In many areas Congress added money to the President's Budget. Highlights of the Appropriations Bill included:

- Almost a billion dollars extra appropriated for various Aerospace R&D programs.
- Substantial increases (about $51 million) for the Manufacturing Technology program (however, many of the increases were for earmarked projects).
- Full funding for the Dual Use Science and Technology (DU S&T) and Commercial Operations and Support Savings Initiative (COSSI) programs.
- A 0.7 percent across the board pro-rata reduction was made to all R&D accounts to balance the defense account.

The Authorization Bill contained extensive language in the areas of ManTech, S&T Management (especially for the Air Force), and acquisition reform issues.

- About half the increase (over the President's Budget requested amount) in the appropriation for ManTech was actually authorized. Authorization for the remainder will have to be the subject of later negotiations between the Authorization and Appropriations Committees. A report by the General Accounting Office on compliance with competitive procedures was directed.

- The Committee as very concerned by the drop in DoD S&T funding, especially the Air Force, which used to have the largest S&T budget of the Services but now has the lowest. The Air Force was required to conduct a one-year review of S&T and was effectively placed on notice regarding funding levels for S&T. There will be a GAO review of Service S&T issues and funding.
- The pilot program for the Joint Direct Attack Munition (JDAM) was extended until 2007.
- The proposed Presidential Commission on the Future of the Aerospace Industry was approved. It will be a twelve-member commission, with six appointed by the new President (one will be the Chairman), three by the Senate (two appointed by the majority, one by the minority) and three by the House of Representatives (same arrangement).
- The Authorization Bill (in its current form) provides clarification and an extension of the prototyping authorities (so-called "845" authorities). The authority is extended to the end of fiscal year 2004; however a one-third cost share is required under certain conditions.
- The proposal to extend "other transactions authorities" to some or all production programs fell out of the bill during conference—will have to try again next year.

Major Gregory Redick, USAF (Military Assistant to the Assistant Deputy Under Secretary of Defense for Acquisition Process and Policies) on the DoD's Civil Military Integration Initiative:

Major Redick discussed several current issues regarding obstacles to civil-military integration, in particular intellectual property rights. In response to Executive Committee members' concerns he indicated that the Department of Defense realizes this issue is of particular concern to both commercial and defense industry. Several initiatives are being undertaken to improve the situation—a DoD Rapid Improvement Team (RIT) is working this issue. One of the initiatives involves the preparation of a "layman's guide to IPR." It will be for the use of contracting officers, program/project managers, etc. It has not yet been published and Industry comments on the draft will be sought. Also, Industry participation in the RIT meeting(s) (tentatively scheduled for mid-November) will be sought out. After that, Service coordination will be completed and the new guide issued.

The members of the Executive Committee pointed out that the issue is not limited to commercial firms. Even large "main line" defense firms are doing venture capital-type efforts as they "mine for technology." They want nothing to do with DoD-unique requirements (especially in the area of intellectual property).

Mr. Sinnett, on behalf of the Executive Committee indicated the I-ATF would be very willing to provide comments to the RIT on the new "layman's guide" as requested by DoD. Mr. Siegel indicated NCAT would also be willing to coordinate the distribution of

the draft guide and collection, consolidation, and synthesis of the comments for transmittal back to DoD.

Another area of concern to Industry is export licensing and controls. According to Major Redick there is an active, ongoing effort to establish a comprehensive Service/OSD coordinated position regarding all aspects of export controls (considerable *ad hoc* coordination regarding particular industry segments has been accomplished). This will then be further coordinated (and this will be the tougher part) with the Departments of Commerce and State. There may be another Rapid Improvement Team commissioned to facilitate/force Service/OSD coordination and agreement. It was suggested that Industry be allowed to participate in the RIT, if it in fact takes place. Mr. Siegel indicated AIA would be willing to coordinate any Aerospace Industry participation in the RIT (rather than the I-ATF getting into this aspect). Major Redick indicated he would take the offer back to Mr. Mounts (Director of International and Commercial Systems Acquisition).

Mr. James M. Sinnett (Chairman of the Executive Committee of the Multi-Association Industry Affordability Task Force and Vice President Strategic Development, The Boeing Company) on the Chairman's Assessment and Other Topics:

Mr. Sinnett initiated a discussion on potential future Task Force activities by noting that the Task Force provided a platform from which to address intellectual property and export control issues. These currently pose considerable barriers to the Department of Defense being able to take advantage of research and development in both defense and commercial industry. He urged members of the Executive Committee to provide comments on the Affordability White Paper provided by Mr. Cundiff and to participate in the Department of Commerce's Transportation and Related Technical Equipment Technical Advisory Committee.

During the previous year it had been thought that the I-ATF would commission a major study of simulation based acquisition (SBA) in support of the Director of Defense Research and Engineering (DDR&E). However, promised funding failed to materialize from DoD and thus this failed to come to fruition. The SBA effort within the Office of the Secretary of Defense is now in near-total disarray in terms of organizational functions, points of contact, and funding. Accordingly, Mr. Sinnett then called on Mr. Steve Olson, Chair of the I-ATF's Simulation Based Acquisition Team, to give a brief assessment of the current state of SBA activities within the DoD and Industry.

Mr. Olson indicated that SBA had been a hot topic but that not much has happened lately. Two organizations that had been assigned responsibility for SBA within the Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) have been successively dismantled and there is currently no identified funding at the OSD level for SBA activities. By contrast, the Services are moving forward haltingly on a variety of SBA activities—but their activities are not necessarily coordinated and there is some duplication and some gaps in the research being done and the architectures being

formulated. The Army's SMART program and the Navy's DD-21 are examples of individual programs that are moving forward with SBA activities. The Air Force is interested but is very short of funding to support SBA activities and initiatives. It was setting up a strong SBA effort at the Electronic Systems Center but that has now dissipated. There is certainly no effective advocacy at the OSD level.

SBA only makes sense if the Government says it will be used in source selection issues. However to do this there needs to be common data exchange standards, etc. To date, Industry telling OSD that the DoD needs to spend money on SBA has not been effective. If OSD does not provide a strong central focus and organizing effort then, while Industry will inevitably move forward, the whole SBA movement will necessarily be fragmented. There will be gaps, overlaps, lack of commonality, and a lack of interoperability/standardization with respect to SBA tools and processes. If Industry is unable to get OSD off dead center on the SBA issue, then Industry will later have cause to regret it.

When asked what the individual Military Services were doing, Mr. Olson indicated they were all using modeling and simulation (M&S) to some degree. The Army is probably the leader in effectively employing M&S within systems acquisition. All of the Services have indicated they will be using more and more simulation and modeling—but it will be without formal process of SBA to provide common process framework. No Service is currently funding development of a common architectural framework, data compatibility standards, etc that would enable the use of common shared resources.

The members of the Executive Committee requested that Mr. Olson give a presentation on the current state of Simulation Based Acquisition at the next meeting of the I-ATF Executive Committee. Mr. Sinnett noted that there are many important issues to be dealt with as far the future use of SBA in Industry and the Government. There are elements of SBA going on in lots of places but the effort is not sufficiently coordinated. The real issues are in the use of SBA in the requirements process, where most Industry players use Government-provided common models so there is at least some degree of commonality.

After general discussion the members of the Committee agreed that given the lack of an SBA champion within the Office of the Secretary of Defense, the focal point for SBA should be within the Defense Modeling and Simulation Office

Mr. Sinnett noted he had been invited to attend and participate in the next meeting of the full DoD Affordability Task Force on January 17th, 2001. Accordingly, the members of the Executive Committee agreed the next meeting of the Committee would take place January 18th, 2001 so Mr. Sinnett could brief the Executive Committee on the results of the DoD ATF meeting.

There being no further business, the Executive Committee adjourned at 3:15 p.m.

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING—January 18th, 2001

Will be held in the Aerospace Industries Association Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

AGENDA

9:00 - 9:10	Welcome and Overview	Jim Sinnett (Boeing) **(Confirmed)**
9:10 - 9:45	Team Status Report: Modular Open Systems Study	Reg Varga (Boeing) **(Confirmed)**
9:45 - 10:15	A View Towards 2001	John Douglass, President, AIA **(Confirmed)**
10:15 - 10:45	GAO Study on DoD Commercial R&D Outreach	Donna Byers, GAO **(Confirmed)**
10:45 - 11:00	Break	All
11:00 - 11:30	The U.K.'s DERA Conversion	Dr. Delores Etter, DUSD (S&T) **(Confirmed)**
11:30 - 12:00	Status of Navy S&T Affordability Program	Ms Katherine Drew (ONR) **(Confirmed)**
12:00 - 12:45	**Working Lunch** • DoD S&T Affordability Conference • Affordability Pgms at Georgia Tech	 Mark Gordon (NCAT) Dr. Dan Schrage (Georgia Tech Univ)
12:45 - 1:30	Team Report: Affordable Avionics Initiative Study	Eddie McClendon (Raytheon) **(Confirmed)**
1:30 - 2:15	Status of DoD's Affordability Program	Jim Sinnett (Boeing) **(Confirmed)**
2:15 - 2:30	Break (Optional)	All
2:30 - 3:15	Task Force Business • New Executive Committee Chairman • Future Areas for Task Force Studies and Emphasis	Jim Sinnett (Boeing) **(Confirmed)**
3:00	Adjourn	

Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the
National Center for Advanced Technologies
Washington, DC

January 18th, 2001

The Industry Affordability Task Force (I-ATF) Executive Committee met on January 18th, 2001 from 9:00 a.m. to 3:30 p.m. to review ongoing team activities and to meet with officials of the Department of Defense. Three ATF Team Chairpersons attended the session: Mr. Reg Varga, Modular Open Systems; Mr. Eddie McClendon, Affordable Avionics; Mr. Herm Reininga, Multi-Use Manufacturing Team; and Mr. Michael Robinson, Technology Transition Team.

Government representatives included: Ms Katherine Drew (Office of Naval Research), and Dr. Delores Etter (Office of the Secretary of Defense), and Ms Donna Byers, General Accounting Office.

Mr. Sinnett (Boeing, St Louis) chaired the session, which included a review of the Task Force's activities, presentations by NCAT and AIA Staff, and presentations from representatives of Georgia Institute of Technology, the Office of the Secretary of Defense, the Navy, and the General Accounting Office.

Executive Summary:

Modular Open Systems Study

The purpose of the study's first phase is to provide the DoD with an independent Industry view of the Joint Technical Architecture (JTA). Currently the ISG is working 22 different issues from an Industry view. The focus of the DoD's JTA work has expanded to include interoperability in a more full sense than previously to include module-to-module interoperability. Also, there are an increased number of domain-specific standards being used. Unfortunately, they are being improperly applied and overused. This inhibits innovation, especially in acquisition reform.

There are many ambiguities in the current JTA process and Industry has not been a part of JTA development to any significant degree. Unfortunately, from an Industry viewpoint, JTA has become less oriented towards guidance and has become more regulatory in nature. The current DoD management focus as regards JTA is far too narrow, concentrating on the technical architecture and not balancing between operational needs, technical architecture, and systems design. Industry needs to put

together a strong plan of attack. The DoD C4I folks are dominant in this arena, not the DoD acquisition folks. The warfighters and the acquisition community are not prime players here and have not been involved to any significant degree until recently. Interoperability should be driving standards rather than the other way around but that is not what is happening. If the new Under Secretary (Acquisition) is from Industry, then there may be a chance to raise this issue and get it resolved. The presentation given to the Committee should go to him as soon as possible once he is in office. The briefing must not be confused with an attack on interoperability.

It is very possible to fully comply with the JTA and NOT be interoperable. In fact, the current version of the JTA does not come close to ensuring true interoperability. It needs to be established that the JTA is for guidance and is not mandated for use. It is a reference document (or should be). The ISG's position was that the JTA should only address interoperability architectures, with domain-specific architectural guidance for DoD systems coming from the DoD Open Systems Joint task Force. Also:

- There is considerable doubt as to amount of innovation that Industry can bring to the table (cost, performance, and schedule) when Industry has to deal with over 700 new and emerging standards.
- There is a group of experts requiring Industry (without much consultation with Industry) requiring the use of JTA. However these experts do not appear knowledgeable in the various domain areas such as aviation.
- The whole JTA effort is well intentioned. However, the current approach to the JTA is not working from an Industry viewpoint. What is needed is not finger pointing but a proactive positive approach.

The effectiveness of the JTA in the future depends on the JTA's capacity to be flexible and provide focused guidance (not inflexible direction) in crucial areas of interoperability.

The DERA Conversion and Other Matters (Dr. Etter).

Dr. Etter said she had very much appreciated the I-ATF's comments and feedback over the past year regarding DERA. In fact, the feedback from the Executive Committee members formed a large part of the comments her office had received from Industry as a whole and the Committee's comments (passed through NCAT) had been particularly timely and useful. Currently several issues dealing with the DERA conversion are moving along well: intellectual property, retrieval of documentation, and IT network separation. From the U.K. perspective the process is slowing down somewhat. The split in the approximately 12,000 strong DERA workforce (3,000 to remain with the Ministry of Defense's new Defense Science and Technology Laboratory; 9,000 to be privatized) has been delayed. There is a list that has been generated that shows by name who will remain with DSTL and who will "go private" but it is in flux. It will be U.S. policy to deal normally with persons on the DSTL list and deal with persons not on the list as private contractors, starting immediately. Retrieving of the U.S. documents is proceeding, albeit slowly. The ownership/storage/retrieval of over 20,000 documents needs to be resolved. Dr. Etter had a team look at the U.K.'s approach to splitting

DERA's IT networks and the team indicated to Dr. Etter that it felt very comfortable with the U.K.'s planned approach to this issue.

The Committee discussed with Dr. Etter the benefits of international collaboration. The United Kingdom/DERA brought a lot to the table in the past but 75 percent of that expertise will now be working private issues. In fact, there will be some notable expertise that will no longer be available for government-to-government work. Also, the U.K. is planning to encourage the remaining DSTL folks to look for partnerships with Industry and opportunities to exploit and spin-off technologies. This will to some degree inhibit how unfettered the remaining government-to-government interactions can be.

Dr. Etter asked members of the Committee if there was a way they saw to involve Industry in shaping the S&T workforce. There are two dominant issues: the lack of funding stability for S&T and the S&T workforce itself. She indicated funding has been in a long-term decline but is now stabilizing and may well increase with the new administration. As far as the workforce goes, Service laboratories are struggling to recruit, retain, and reward their S&T folks. There should be a two-way street—bring Industry people to government labs on six-month or one-year exchanges. Industry has state of the art facilities and expertise and having a viable exchange program could help take full advantage of both.

Dr. Etter said that the government labs are critical links between what is coming from the S&T community (Government and Industry) and getting that technology into fielded systems where it can be useful. She indicated that the Government must maintain a strong basic research program. Also, Commercial Industry, almost by definition, is not investing in many basic research areas that are extremely important to DoD.

Mr. Douglass on "A View Towards 2001."

Mr. Douglass, President and CEO of the Aerospace Industries Association, offered his thoughts on the immediate future for the Aerospace Industry and lauded Mr. Sinnett's term as Chairman of the Executive Committee. Mr. Douglass indicated there was a great management team designated in the national security area. He noted these names and the many other being discussed for other positions show the new Administration is picking a very professional team, many of who have worked together before. The first 120 days will be crucial. The Services already have their Program Objective Memoranda (POMs) well under way for the 2003 budget. In reality, Mr. Bush can only have a serious effect (from the bottom up) on the 2004 budget.

With respect to NASA, it must get back to its "other" role of aeronautical research in a much more meaningful way. The country needs a renaissance in aeronautics research. The Europeans are taking the long view and investing heavily in aerospace infrastructure—much more so than is the United States. Hopefully, exploring this issue will be a major focus of the Presidential Commission on the Future of the Aerospace Industry as well as the issues of export controls and releasability of technology.

Mr. Douglass expressed his own warm personal appreciation for Mr. Sinnett's efforts. He noted that throughout his career he had run into Jim Sinnett and saw at first hand the fashioning of the great legacy that Mr. Sinnett will leave behind at Boeing, in the Department of Defense (especially the Navy), and the Multi-Association Industry Affordability Task Force.

GAO Study on DoD Commercial Outreach.

The GAO is examining DoD's contracting with (commercial) high technology firms. The Armed Services Committee of the U.S. Senate requested the GAO "review DoD's ability to build R&D relationships with leading technology firms." The objective of the study is to determine how the Department of Defense can structure its commercial relationships to better leverage commercial R&D to improve military weapons. The GAO intends to start its study by identifying technology areas that are important for meeting DoD requirements but that are led by commercial firms. Then, using a case study approach, the study will define the extent of the relationships between the DoD and Industry in selected technology areas. Finally, they will survey Industry to test assumptions about the nature of the overall problem, probable causes, and possible solutions.

The study has (so far) found no systemic (i.e., Industry-wide) evidence of Commercial Industry being unwilling to deal with the Department of Defense. The GAO has found that most companies consulted have indicated the DoD is "no longer the driving force behind many emerging technologies." Many companies are exiting the defense market place when being in that market means they must deal with DoD. They still work with DoD suppliers—they just do not have a direct contractual relationship with DoD. Other firms will sell directly to the Department, however they will no longer enter in to R&D contracts. The issues appear to be many and include intellectual property, rights-in-data, government cost accounting standards, and export controls.

Initially the GAO plans to perform case studies in the areas of battery technology, fuel cells, advanced materials, and information technology. The Executive Committee suggested that battery technology would not be a fruitful area for investigation. The Committee indicated that advanced materials was a very worthwhile area to examine and must include manufacturing processes in the review. Information technology is so dominant that it is a *must-do* focus area. Committee members noted that Commercial Industry, in general, will not do high-risk research or product development. DoD is expected to fund such high risk, high payoff R&D, especially (regardless of the risk) when there is little hope of commercial payback.

ONR's Affordability Measurement and Prediction Program.

The AMPP started in 1997 as a 6.1 (basic research) program that looked at the relationships between cost, performance, and availability. The approach uses science-based tool development and a planned transition of the research as it matures. Transition

is assisted by proof of concept demonstrations. Customer involvement has been key to successful transition of the technology thus far.

AMPP tools are particularly useful in that portion of decision space defined by having many variables and high uncertainty of data. During the defense acquisition cycle AMPP would be most useful in the region involving determination of mission needs and Concept Exploration. This is where AMPP can be used to trade-off requirements and properly time technology insertion events. Currently the AMPP effort involves seven universities, three labs (plus John Hopkins Applied Physics Lab), and many small and large businesses. The businesses primarily involve ship builders and engine manufacturers. Within the program, each entity conducting the research has at least one user of the research product as a partner. Structuring the program in this manner encourages effective transition of the technology.

Members of the Executive Committee noted that there is a fundamental problem with cost estimating/models today including those used within AMPP. That is, the data and techniques used to build them are based on historical data. The new processes (everything from IPPD to six-sigma) are making historical models inaccurate. There is a very great need to have new models that incorporate the new processes that lower costs. The Executive Committee also pointed out the need to maintain the link between costs and simulation-based acquisition and modeling and simulation.

Affordability Programs at Georgia Tech.

Dr. Schrage gave a presentation on the affordability programs at Georgia Institute of Technology including the development of the Georgia Tech graduate program in aerospace systems design and how it had been developed around "system design for affordability." The National Science Foundation has identified a "design process paradigm shift" which Georgia Tech's Center for Aerospace Systems Analysis is addressing in a partnership with Industry and the Government. Members of the Executive Committee endorsed partnerships between companies and academia, indicating they felt that partnerships between universities and companies in particular could be very rewarding to both sides. Companies were increasingly partnering with just a few academic institutions rather than spreading their support among many. Committee members also endorsed the idea that engineering curricula should see more linkages with how products are actually moved through the manufacturing process within the factory, with each manufacturing process being modeled and examined from an affordability view and others as well.

The Air Force's Affordable Avionics Initiative Study.

This USAF effort originated over a year previously with the Eagle Look examination of Air Force's problems with avionics. In this AAI effort, the Aeronautical Systems Center (ASC) has asked Industry to tell them what incentives are needed to get better performance from avionics contractors, how to change source selection criteria, and provide suggested model contract language to enable the Air Force to better contract for

affordable support of new and legacy avionics systems. The task for the Industry AAI Working group is to develop suggested methodology for identifying TOC "best value" proposals for systems that will be undergoing future changes beyond those currently proposed.

The Air Force wants "open systems" to apply down to the component level—for both new and legacy systems. While "openness" is good (although there are intellectual property rights issues) in general, it may or may not bring affordability. The Executive Committee noted that the Services are not necessarily looking for a fully open system all of the time. "Modular systems" is the term that should be used rather than "open system." Modular systems concepts when properly implemented get at least 90 percent of the benefits of a fully open system without the baggage (IPR, etc.).

The Air Force approach for avionics source selection criteria (specifically, the AF inputs into the acquisition planning baseline) includes an Integrated Change Roadmap (ICR). This is not necessarily provided to Industry now, but it must be in the future if Industry is to be a partner in effective evolutionary acquisition. With regard to evaluation factors, access to acquisition roadmaps is critical for Industry (vendor) insight into technology directions. When evaluating the technical approach the evaluation factors should include foremost the degree to which mission requirements, KPPs, etc are met. However, the evaluation should then look at the contractor's use of a modular systems architecture; use of high fidelity simulation; utilization of IPPD and CAIV throughout the proposed program; and proposed technology insertion concepts (to meet increased capability needs in the future, combat component obsolescence, etc.) without the need for radical redesign and subsequent cost impacts.

Technology insertion concepts will be key to saving maintenance dollars that can then be put into further modernization. Evaluation factors should include an affordability approach rather than cost and price. Affordability should be a weighted minimum of at least 25 percent. When using the affordability approach, costs should be looked at and evaluated based on life cycle cost analysis, i.e., minimum life cycle cost (for a given capability) versus initial acquisition cost.

From an Industry perspective, there are business incentives operating that needed to be looked at and the government needs to be aware of—and accommodate. Reduced total operating cost (RTOC) and affordability arrangements (i.e., legacy systems support) should be characterized by long-term contracts, private/public partnering, a performance based business environment, and moving to a price-based versus cost-based approach. Partnering will probably have to include government depots whether Industry likes it or not—realistically, the Depot Coalition is not going to go away.

Chairman's Assessment.

In his capacity as Chairman of the Multi-Association Industry Affordability Task Force Mr. Sinnett had been invited to attend the recent meeting of the DoD Affordability Task Force. He gave a report on what he found important from that meeting. Simulation

based acquisition within DoD is in very bad shape. SBA will be an enabling tool for evolutionary acquisition and if it is not brought along then the cause of evolutionary acquisition will suffer for it. TRLs need to be fully defined and understood by Government and Industry. There has to be a common understanding of what each TRL means and that understanding should be based on the viewpoint of the person/entity that will be using the technology. As a group, the I-ATF should start working SBA and TRLs with the Department of Defense within the context of how they fit in with evolutionary acquisition. There is a need for the I-ATF to make a presentation to the new administration on how Industry can help in institutionalizing SBA and TRLs. Manufacturing technology is increasingly important to sustainment. Processes being developed and used for production operations need to find their way into sustainment operations.

Chairman's Opening Remarks:

Mr. Sinnett, Chairman of the Executive Committee, added his welcome remarks and formally opened the meeting by reviewing the planned agenda. He noted the emphasis over the past meetings on acquisition reform issues, and in particular, the combination of the Evolutionary Acquisition Initiative and the rewrite of the DoD 5000 series of acquisition documents. He also noted that a considerable amount of work, with many individual accomplishments, had taken place over the past eight years. He indicated the current challenge, which would have a considerable payoff, would be to get the new Evolutionary Acquisition (EA) system established and implemented. The fact of a new Administration coming into office in January adds to both the challenge and the opportunity to move EA and acquisition reform along. He indicated that having Mr. Rumsfeld as the new Secretary of Defense was very encouraging sign for affordability, as it was one of the priority areas for the new Secretary of Defense. The Industry Affordability Task Force (I-ATF) may have the opportunity for considerably more visibility, which would be good for the Task Force, the companies and associations that support it, and the National Center for Advanced Technologies.

Mr. Stan Siegel, President, National Center for Advanced Technologies:

Mr. Siegel welcomed the members of the Executive Committee. He announced that this would be Mr. Sinnett's last meeting as the Chairman of the Executive Committee of the Industry Affordability Task Force and then paid tribute to Mr. Sinnett's leadership of the Industry Affordability Task Force for the past five years. The members of the Committee applauded Mr. Sinnett's leadership and vision and offered their own testimonial remarks as well. Both Mr. Siegel and the members of the Executive Committee indicated they were very sorry to see Mr. Sinnett retire from Boeing and leave the Committee. Mr. Sinnett then received a testimonial plaque recognizing his leadership and thanking him for his service. Mr. Sinnett was also presented a most useful (in retirement) gift from NCAT and the Committee. Mr. Sinnett made brief remarks expressing his appreciation to Mr. Siegel and the members of the Executive Committee, which were well received.

Mr. Reg Varga, (Boeing, Chairman of the MOSA Industry Steering Group) on the ongoing NCAT Modular Open Systems Study:

Mr. Reg Varga, Chairman of the Modular Open Systems Approach (MOSA) Industry Steering Group (ISG), presented an update on the ongoing Modular Open Systems Study. The purpose of the study's first phase is to provide the DoD with an independent Industry view of the Joint Technical Architecture (JTA). Currently the ISG is working 22 different issues from an Industry view. Key among these is the use of open systems standards. There are nine members on the ISG representing a good cross section of Industry and academic backgrounds and with a wide variety of past experience and current expertise.

From the ISG's standpoint it is clear that the focus of the DoD's JTA work has expanded to include interoperability in a more full sense than previously. Originally "interoperability" referred to "skin-to-skin" communication between weapons systems but now it being expanded below that, to include module-to-module interoperability. Also, there are an increased number of domain-specific standards being used. Unfortunately, they are being improperly applied and overused. This inhibits innovation, especially in acquisition reform. There are literally hundreds of interoperability standards (580+ standards either mandated or emerging and likely to be mandated). By contrast AIA has suggested a reduction to just 49 interoperability specifications and standards. However this approach is unlikely to be accepted by the DoD because they are not in DoD's preferred format.

There are many ambiguities in the current JTA process and Industry has not been a part of JTA development to any significant degree. Unfortunately, from an Industry viewpoint, JTA has become less oriented towards guidance and has become more regulatory in nature. The current DoD management focus as regards JTA is far too narrow, concentrating on the technical architecture and not balancing between operational needs, technical architecture, and systems design. In many ways, it seems that JTA's focus on standards has become a goal in itself rather than a partial means to the real goal—Interoperability on a 24/7 basis.

Executive Committee members indicated it seemed if things were getting worse, rather than better, and asked who within the DoD hierarchy could be approached about this trend. Other Committee members responded that their experience was that there is no agreement within DoD and no one single office to approach. A couple of months ago the acquisition folks within Dr. Gansler's office were preparing to have Mr. Oliver (Principal Deputy Under Secretary for Acquisition, Technology, and Logistics) come out against this approach. However, this did not happen. Regrettably, Dr. Gansler (Under Secretary for Acquisition, Technology, and Logistics) has permitted both the growth in standards and the approach now being used, and Mr. Money (Assistant Secretary for C4I) actually supports it. Industry needs to put together a strong plan of attack. The DoD C4I folks are dominant in this arena, not the DoD acquisition folks. The C4I community (OSD and Services) has worked these issues for the last three years to get where they are now--and they are pleased to be there. The warfighters and the acquisition community are not

prime players here and have not been involved to any significant degree until recently. It should be noted that the Joint Forces Command is looking at these issues also. Interoperability should be driving standards rather than the other way around but that is not what is happening. The JTA is revised every year and every revision shows a substantial growth in the number of standards. A key weapon to help fight this trend would be if there could be a way of quantifying the costs of imposing/mandating JTA in its current form. The acquisition community needs that in order to effectively argue its case.

Committee members noted that if the new Under Secretary (Acquisition) is from Industry, then there may be a chance to raise this issue and get it resolved. They suggested that this presentation should go to him as soon as possible once he is in office. The briefing will need to go from a macro viewpoint on the issues and go on down to show where open systems fits. The briefing must not be confused with an attack on interoperability. Members of the Executive Committee noted that Dr. Garber (DoD focal point for interoperability) has not been a part of the group working the JTA within DoD. They also noted that it is very possible to fully comply with the JTA and NOT be interoperable. In fact, the current version of the JTA does not come close to ensuring true interoperability. Members also indicated that it needs to be established (or clarified) that the JTA is guidance and is not mandated for use. It is a reference document (or should be). Mr. Varga indicated the ISG's position was that the JTA should only address interoperability architectures, with domain-specific architectural guidance for DoD systems coming from the DoD Open Systems Joint task Force.

Members of the Committee made these points:

- There is considerable doubt as to amount of innovation Industry can bring to the table (cost, performance, schedule) when Industry has to deal with over 700 new and emerging standards
- There is a group of experts requiring Industry (without much consultation with Industry) to use the JTA. However these experts do not appear knowledgeable in the various domain areas such as aviation. By contrast, the aviation/aerospace community *did* convene a group of experts to look at that domain. In just three meetings they were able to come up with an agreed-to solution involving just 49 specifications/standards. What is needed is to do the same for each distinct domain.
- The whole JTA effort is well intentioned. However, the concept(s) behind it will not work. When the JACG came up with 49 specifications/standards to get effective interoperability (and many of the 49 were not even in the 700 currently being carried by the JTA as needed) that is an indictment of the current JTA system.
- The current approach to the JTA is not working from an Industry viewpoint. However, what is needed is not finger pointing but a proactive positive approach (general agreement expressed from Committee members).

- The JTA is technically complex. The JTA will be resisted and not be accepted/used by Government program managers and/or Industry until and unless it is institutionalized.
- There is a window of opportunity to affect this issue with the transition teams that have been put into place in the DoD. This issue needs to be brought before them. It would be helpful to expand the current Industry Steering Group and get more companies represented if possible. Then, get a briefing to the new Under Secretary (Acquisition, Technology, and Logistics) as soon as possible ***(Action Mr. Varga and NCAT)***.
- There needs to be significant Industry involvement in the JTA rather than an exclusive Government management approach.

The members agreed with Mr. Varga that the effectiveness of the JTA in the future depended on the JTA's capacity to be flexible and provide focused guidance (not inflexible direction) in crucial areas of interoperability. Mr. Varga indicated the ISG would be turning its attention to developing an independent Industry view of the Global Information Grid and the "modular versus open" issues. The Executive Committee thanked Mr. Varga for a very illuminating presentation and asked for an update at the next meeting ***(Action: NCAT and Mr. Varga)***.

Dr. Delores Etter (Deputy Under Secretary of Defense for Science and Technology and Deputy Director of Defense Research and Engineering) on the United Kingdom's Conversion of DERA and Mr. Sinnett's Tenure as I-ATF Executive Committee Chairman:

Dr. Etter began by saying that she would speak without slides and wanted the talk to be informal, with the members of the Committee free to ask questions as she went along. Dr. Etter commented that this was an "exciting time" within the DoD and within the government in general with the imminent change in Administrations. She said that she expected Mr. Rumsfeld to be confirmed very quickly as the new Secretary of Defense and that there should be word on who the nominee would be for Under Secretary of Defense (Acquisition, Technology, and Logistics) soon. Dr. Etter indicated she had been asked to stay on for the near future to help with the transition, but did not offer any word on whether she would be part of the new administration.

Turning her attention to the DERA transition, Dr. Etter said she had very much appreciated the I-ATF's comments and feedback over the past year on this subject. In fact, the feedback from the Executive Committee members formed a large part of the comments her office had received from Industry as a whole and the Committee's comments (passed through NCAT) had been particularly timely and useful. Dr. Etter had just returned from two days of meetings in the United Kingdom regarding the DERA conversion. She regarded it as very important to document the status of the conversion and compliance with concerns of the DoD so as not to lose ground. Dr. Etter offered

(and the Committee accepted) to send copies of the status report (when complete) to NCAT for distribution to Committee members.

Currently several issues dealing with the DERA conversion are moving along well: intellectual property, retrieval of documentation, and IT network separation. From the U.K. perspective the process is slowing down somewhat. The split in the approximately 12,000 strong DERA workforce (3,000 to remain with the Ministry of Defense's new Defense Science and Technology Laboratory; 9,000 to be privatized) has been delayed. There is a list that has been generated that shows by name who will remain with DSTL and who will "go private" but it is in flux. April is the target to have this resolved but officials in the U.K. indicated that could slip until July. (Note: Subsequent to Dr. Etter's conversation with the Executive Committee it was announced that DSTL would open its doors on July 2, 2001 and establishment of the remaining privatized DERA 9,000 persons as "QinetiQ," a commercial company, would occur at the same time.)

Dr. Etter indicated it would be U.S. policy to deal normally with persons on the DSTL list and deal with persons not on the list as private contractors, starting immediately. Those working in the United States on various projects will be checked against the DSTL/private lists and treated accordingly.

Retrieving of the U.S. documents is proceeding, albeit slowly. The London office of the Office of Naval Research is helping in this regard. The ownership/storage/retrieval of over 20,000 documents needs to be resolved.

At the last meeting of the Executive Committee (Dr. Etter also spoke then on the DERA conversion) there was concern on the part of the members of the Committee regarding the split in IT networks. The U.K.'s plan was to protect intellectual property on government networks. Dr. Etter had a team look at the U.K.'s approach and the team indicated to Dr. Etter that it felt very comfortable with the U.K.'s planned approach to this issue. The team felt the implementation needed to be monitored but everything looks O.K. so far.

The Committee discussed with Dr. Etter the benefits of international collaboration. The question was whether or not the United States would still receive the benefits of this collaboration. Dr. Etter indicated that it would take three to five years to find out. It seems increasingly likely the benefit will not be of the magnitude that we (the United States) had previously. The United Kingdom/DERA brought a lot to the table in the past but 75 percent of that expertise will now be working private issues. In fact, there will be some notable expertise that will no longer be available for government-to-government work. Also, the U.K. is planning to encourage the remaining DSTL folks to look for partnerships and opportunities to exploit and spin-off technologies. It seems likely that in some instances that DSTL and the privatized DERA may well be in competition. This may not appear to make sense to us but the U.K has deliberately set it up that way. This will to some degree inhibit how unfettered the remaining government-to-government interactions can be. Dr. Etter said the bottom line was that the United States certainly benefited a lot from government-to-government relationships with the U.K in S&T and R&D and wanted to keep as much of it in place as possible.

Dr. Etter commented that any change in the British government would not affect the plans to spin off a large portion of DERA—that the process was irreversible. If there are problems and it turns out not to have been a very good idea it will not be possible to simply reverse the process and go back to the previous DERA organization. The existing DERA organization/expertise/management will have been destroyed and there will be no conceivable way to readily reconstruct it.

After discussing the DERA privatization Dr. Etter turned her attention to the departure of Mr. Sinnett from his position at Boeing and from his role as the Chairman of the I-ATF Executive Committee. She indicated she was very sorry to Mr. Sinnett go because he had provided a very competent and high quality interface between the I-ATF and the Deputy Under Secretary of Defense (Science and Technology). She indicated it was important to keep affordability at the top of peoples' (scientists' and managers') minds as they move new systems and technologies through the science and technology phase on into development and fielding.

Dr. Etter asked members of the Committee if there was a way they saw to involve Industry in shaping the S&T workforce. There are two dominant issues: the lack of funding stability for S&T and the S&T workforce itself. She indicated funding has been in a long-term decline but is now stabilizing and may well increase with the new administration. As far as the workforce goes, Service laboratories are struggling to recruit, retain, and reward their S&T folks. The question is, how to keep these talented professionals motivated? There is a need for creative ways to send these scientists, managers, and engineers back and forth between government labs and Industry. There should be a two-way street—bring Industry people to government labs on six-month or one-year exchanges. Industry has state of the art facilities and expertise and having a viable exchange program could help take full advantage of both. Committee members expressed support but also indicated that Government personnel policy and IPR concerns might keep both government and Industry from taking full advantage of exchange opportunities.

Dr. Etter said that the government labs are critical links between what is coming from the S&T community (Government and Industry) and getting that technology into fielded systems where it can be useful. She indicated that the Government must maintain a strong basic research program. Also, Commercial Industry, almost by definition, is not investing in many basic research areas that are extremely important to DoD. It is very important that DoD research stay relevant to the current and projected threat. For that reason the S&T community must stay tied into the threat picture.

She indicated that she believed that there are several categories of technology investment that must be maintained. These include:

- Revolutionary Capabilities: Must have DoD programs to meet the existing or projected threats. Past products from this area include GPS, stealth, phased array radar, and lasers. Some products coming out of this area now include electric drive, autonomous systems, and micro systems.

- Enabling Technologies: Not as glamorous as many but MUST be done to preserve the capabilities of the forces now in place. Areas where a substantial level of work must be maintained include propulsion (rocket, turbine, ramjet, and hypersonics), radiation hardened electronics, modeling and simulation, and software development technologies. The DoD must not lose sight of these areas and must stay heavily engaged. These enabling technologies are not the same as the "evolutionary technologies." That term is no longer being used within the DoD.

Dr. Etter concluded her presentation by again thanking Mr. Sinnett for his efforts on behalf of affordability as Chairman of the Industry Affordability Executive Committee and for his efforts to improve communication between Industry and the DoD S&T community in general. She then presented him with a DDR&E coin/medallion as a token of her appreciation.

The Honorable John W. Douglass (President and CEO, Aerospace Industries Association of America) on "A View Towards 2001" and Appreciation for Mr. Sinnett's Service as I-ATF Executive Committee Chairman:

Mr. Douglass, President and CEO of the Aerospace Industries Association, joined the meeting to offer his thoughts on the immediate future for the Aerospace Industry, given the recent election results and other matters. He also lauded Mr. Sinnett's term as Chairman of the Executive Committee.

Mr. Douglass began his presentation by congratulating the Executive Committee for the "wonderful legacy of the group to date." He indicated everyone in Industry and the government must keep up the emphasis on affordability and that affordability was never more important than now. He also noted the opportunity to emphasize affordability during the transition to the Bush administration.

With regard to the new administration Mr. Douglass indicated there was a great designated management team in the national security area (Ms. Rice, Mr. Rumsfeld, General Powell, et al). He noted these names and the many other being discussed for other positions show the new Administration is picking a very professional team, many of whom have worked together before. Although professional they have huge problems before them. There are many questions that only time will see the answer to such as:

- How will the new national security team work together?
- What new team will Mr. Rumsfeld put in place? And how many of them will he have a free hand to pick?
- What will Mr. Cheney's place in the chain of command (formal and informal) be with regard to national security matters?
- What will Ms Rice's role and style be, given there will be very strong Secretaries of Defense and State as well as an extremely powerful and influential Vice President?

- Also, how will the plans for a massive tax cut dovetail with the hopes for greater spending in national security areas?

Mr. Douglas noted that the next 120 days would be crucial. There are only 30 days for the President to submit an amendment to Mr. Clinton's 2002 budget so that Congress can mark a Republican budget rather than a Democratic one. There are only 120 days to establish the topline for the 2003 budget so the topline for each department and Military Service can be issued by the Office of Management and Budget. The Military Services already have their Program Objective Memoranda (POMs) well under way for the 2003 budget. In reality, Mr. Bush can only have a serious effect (from the bottom up) on the 2004 budget.

With regard to the Aerospace Industry, AIA has been able to get a Presidential Commission on the Future of the Aerospace Industry established in the law. Mr. Bush is on record supporting this Commission. AIA will be working to get the Commission established on time. It is important to get rapid Commission action on critical issues facing the Aerospace Industry. These issues include:

- Progress payments (DoD only allows 80 percent, all others in government allow 85-90 percent, in Commercial Industry it is even higher)
- Aerospace research funding levels in the 2002 budget
- What should be the long-term trade relationships with out European allies?
- Aerospace contributions to the nation's balance of trade are responsible for most of the aggregate positive trade balance. There will be a significant impact on the trade balance depending on where the Aerospace Industry goes from here.

With respect to NASA, it is hard to tell how that will shake out but easy to say where it should go. NASA must get back to its "other" role of aeronautical research in a much more meaningful way. The country needs a renaissance in aeronautics research. We also need to increase our commitments to research in air traffic control and air safety. The Europeans are taking the long view and investing heavily in aerospace infrastructure—much more so than is the United States. This story will be told to the Commission. In particular, Europe has a much different relationship between Industry and the government. A major European government function is to create jobs. Unlike the United States, they do not regard government involvement as breeding inefficiencies. Hopefully, exploring this issue will be a major focus of the Commission as well as export controls and releasability of technology.

Mr. Douglass then turned his attention to Mr. Sinnett's service as Chairman of the Executive Committee. He expressed his own warm personal appreciation for Mr. Sinnett's efforts that he developed both as President and CEO of the Aerospace Industries Association, Chairman of the National Center for Advanced Technologies, and, previously, as Assistant Secretary of the Navy (Research, Development, and Acquisition). Mr. Douglass noted that throughout his career he had run into Jim Sinnett and saw at first hand the fashioning of the great legacy that Mr. Sinnett will leave behind

at Boeing, in the Department of Defense—especially the Navy—and the Industry Affordability Task Force. Part of Mr. Sinnett's great effectiveness is that he never operated on an "us versus them" basis. He worked very effectively at the interfaces of each issue he addressed and thus achieved outstanding results. He noted Jim has been motivated by a desire to serve and to work on exciting projects. Mr. Douglass concluded by again expressing his appreciation for Mr. Sinnett's outstanding service to the Task Force and indicated that Jim has been a model for engineers and mangers in Industry and government alike.

Ms Donna Byers (Senior Management Analyst, General Accounting Office) on the GAO Study on DoD Commercial R&D Outreach:

Ms Byers gave a presentation of the GAO's ongoing study of DoD contracting with (commercial) high technology firms. The Armed Services Committee of the U.S. Senate requested the GAO "review DoD's ability to build R&D relationships with leading technology firms." The objective of the study is to determine how the Department of Defense can structure its commercial relationships to better leverage commercial R&D to improve military weapons.

The GAO intends to start its study by identifying technology areas that are important for meeting DoD requirements but that are led by commercial firms. Then, using a case study approach, the study will attempt to define the extent of the relationships between the DoD and Industry in selected technology area. Finally, they will survey Industry to test assumptions about the nature of the overall problem, probable causes, and possible solutions.

The study has (so far) found no systemic (i.e., Industry-wide) evidence of commercial Industry being unwilling to deal with the Department of Defense. Ms Byers indicated that most evidence to the contrary thus far is anecdotal in nature. There are however notable exceptions to the "no systemic evidence" rule: Motorola and Hewlett-Packard are example of large commercial firms that have made a formal practice of not entering into research contracts with the Defense Department (although they will sell—usually on a purchase order basis) to the Department as they would to any other large customer.

The GAO has found that most companies consulted have indicated the DoD is "no longer the driving force behind many emerging technologies." Many companies are exiting the defense market place when being in that market means they must deal with DoD. They still work with DoD suppliers—they just do not have a direct contractual relationship with DoD. Other firms will sell directly to the Department; however they will no longer enter in to R&D contracts. The issues appear to be many and include intellectual property, rights-in-data, government cost accounting standards, and export controls. The Executive Committee asked if the growing reluctance to work with DoD applied to every area or was concentrated in the R&D area. Ms Byers indicated based on preliminary studies that the problem appeared to occur primarily in the R&D area but that the study

would look at all areas to at least some degree. They will also look at Commercial Industry relationships with other government agencies in order to compare the DoD.

Initially the GAO plans to perform case studies in the areas of battery technology, fuel cells, advanced materials, and information technology. When queried if the intent as to attribute information to responding firms or aggregate comments without identifying specific companies as sources, Ms Byers indicated the GAO intended to select four to six companies in each area and survey them in depth. The GAO will work the issue of whether-or-not individual companies want to be identified on a case-by-case basis.

With regard to the GAO's proposed technology study areas, the members of the Executive Committee suggested that battery technology would not be a fruitful area for investigation. While batteries are very important to the DoD—power sources for the foot soldier is a tough issue that must be resolved—battery technology is fairly mature and it may not be the best example if the study seeks to examine the relationship (or lack thereof) between DoD and commercial firms at the cutting edge of R&D. At least, the study should look a more broadly defined area such as "compact energy/power sources." The Committee indicated that advanced materials was a very worthwhile area to examine and must include manufacturing processes in the review. Information technology is so dominant that it is a *must-do* focus area according to Committee members. Industry is not doing very much consulting with DoD in information technology and the amount of government versus commercial investment is very low. It was also pointed out that if the objective is to better learn how to leverage commercial R&D, then specific areas for case studies should be selected where there is both significant government and commercial R&D so leverage can be demonstrated/shown. Research areas where there is very little government R&D are interesting but not germane to the study's objectives as stated—by definition there can be little/no leverage where government funding is a very small part of the total.

Committee members noted that Commercial Industry in general will not do high-risk research or product development. DoD is expected to fund such high risk, high payoff R&D, especially (regardless of the risk) when there is little hope of commercial payback. The members of the committee and Ms Byers agreed that there was a lot of innovation in Commercial Industry--in fact, never more than today. However, they also agreed that that had set the stage for the worst problem between Commercial Industry (and increasingly the Defense Industry as well) and the Department of Defense--intellectual property.

The Joint Warfighter Science and Technology Plan was suggested as another source of DoD R&D investment and technology needs information for the GAO by the Executive Committee members. Ms Byers thanked the Executive Committee members for this input and said the GAO would pursue getting a copy of this document for review.

Several members of the Executive Committee suggested that most of the obstacles cited by commercial firms to doing R&D with DoD seemed to be in the (broadly defined) "contractual areas." They asked if the GAO would be looking at contractual "terms and

conditions" and comparing commercial versus DoD. Ms Byers indicated the GAO would indeed be looking at that area. In fact, the context of this GAO study to a great degree is that of acquisition reform.

The Committee members indicated they were open as a group or individually to be contacted by the GAO as it progresses in its work. Also, Ms Byers accepted an invitation from the Committee to brief the results (or at least provide a progress report) of the study at the next meeting (probably in May or June 2001). ***(Action: NCAT will invite the GAO to brief the study at the next meeting of the Executive Committee)***

Ms. Katherine Drew (Industrial Programs Division, Office of Naval Research) on the Affordability Measurement and Prediction Program:

Ms Drew gave an overview of the Navy's Affordability Measurement and Prediction Program (AMPP). In addition to the overview/status of the program Ms Drew also reviewed the application of AMPP as part of the affordability training for science and technology program managers.

AMPP started in 1997 as a 6.1 (basic research) program that looked at the relationships between cost, performance, and availability. There was considerable DoD and Navy interest in models and methodologies for decision-makers, which helped obtain funding. The approach uses science-based tool development and a planned transition of the research as it matures. Transition is assisted by proof of concept demonstrations. She noted that customer involvement has been key to successful transition of the technology thus far.

AMPP tools are particularly useful in that portion of decision space defined by having many variables and high uncertainty of data. During the defense acquisition cycle AMPP would be most useful in the region involving determination of mission needs and Concept Exploration. This is where AMPP can be used to trade-off requirements and properly time technology insertion events.

Currently the AMPP effort involves seven universities, three labs (plus John Hopkins Applied Physics Lab), and many small and large businesses. The businesses primarily involve ship builders and engine manufacturers. Within the program, each entity conducting the research has at least one user of the research product as a partner. Structuring the program in this manner encourages effective transition of the technology. Near-term application of AMPP has included TIES (Technology Identification Evaluation and Selection), which involves simultaneous examination of system requirements, technologies, and concepts. TIES has been proven out on the F-18 evolution (assisting NAVAIR in studies of future carrier-based aircraft) and on General Electric's selection of technology for its ultra-efficient engine. Another application has been for PET (Proposal Evaluation Tool), which helps optimize the allocation of resources.

Ms Drew asked the members of the Executive Committee if it seemed to them that ONR was putting its dollars in the right place. She indicated that the Navy wants its key industrial partners to use the AMPP tools they have developed and are continuing to develop. ONR's ultimate goal regarding AMPP is to have Industry all use common models. The Government (although it might create them through AMPP) will not update the models. Rather, they want Industry to adopt the AMPP tools and models and then sell and maintain them; make them available for general use.

Members of the Executive Committee noted that there is a fundamental problem with cost estimating/models today. That is, the data and techniques used to build them are based on historical data. The new processes (everything from IPPD to six-sigma) are making historical models inaccurate. There is a very great need to have new models that incorporate the new processes that lower costs. Ms Drew indicated the models being created under AMPP will be tailorable for specific variances, and readily updated to account for cost changes caused by the new processes. However, there is a need to convince the current cost estimating community of the viability of these new cost models. Validation and verification will have to be complete and credible for these new cost-estimating models before they will be widely accepted and used. The Executive Committee also pointed out the need to maintain the link between costs and simulation-based acquisition and modeling and simulation.

Mr. Mark A. Gordon (Director of Education Programs, National Center for Advanced Technologies) on the DoD S&T Affordability Conference:

Mr. Gordon gave a brief presentation on the upcoming (March 12-13, 2001) S&T Affordability Conference sponsored by the Office of the Deputy Under Secretary of Defense (Science and Technology). Mr. Gordon noted that it had been 17 months since the last conference. The sponsors desired both a larger conference and more Industry representation (at least half) for this fourth conference in the series (there was also one large workshop). At the last conference there were 80 Industry attendees out of 210 attendees total, this time the conference is expected to attract at least 300 (with about half from Industry).

Mr. Gordon went over the planed conference agenda with the Executive Committee. On the first day of the conference each Military Service will present one of their major successful affordability programs in a "Service Best Practices Panel" format. The Integrated Project Team representing each affordability program will present the results of their effort, including lessons learned. The IPT presentations will include representatives from the user, program manager, Industry, test community, and the sub tier contractors if applicable. The second day will include keynote speakers from Industry, Academia, and Government (the user for the technologies). There will also be several panel discussions, including an Industry Panel on how Industry transitions affordable technology, a "View of Affordability" Panel made of the Service R&D Executives, and a Panel consisting of the Service S&T Executives.

Mr. Gordon noted that NCAT has acquired a new URL for its use: affordability.org. The conference notes and presentations will be posted there after the conference. Members of the Executive Committee indicated they would try to publicize the S&T Affordability Conference through their own channels at their companies. A suggestion was made that a high-level representative from Dell would be ideal for the Industry Panel at the Conference.

Dr. Daniel P. Schrage (Professor, Aerospace Engineering Department and Director of the Centers for Aerospace Systems Analysis and Excellence in Rotorcraft Technology, Georgia Institute of Technology) on Affordability Programs at Georgia Tech:

Dr. Schrage gave a presentation on the affordability programs at Georgia Institute of Technology. He noted that Georgia Tech had been involved with NCAT and the Affordability Task Force working affordability issues, especially Integrated Product and Process Development, since 1993. Indeed, many concepts being adopted in the name of affordability by the Department of Defense and others got their start through NCAT and the Industry Affordability Task Force. Dr. Schrage then discussed the development of the Georgia Tech graduate program in aerospace systems design and how it had been developed around "system design for affordability."

He noted that Georgia Tech's College of Engineering was ranked number three in the nation with the School for Aerospace Engineering ranking number four. This is at least in part due to the close relationship between the School of Aerospace Engineering (with its Center for Aerospace Systems Analysis (CASA), which includes the Aerospace systems Design Lab and the Space Systems Design Lab) and the Georgia Tech Research Institute. Dr. Schrage described the Center for Aerospace Systems Analysis in some detail for the members of the Executive Committee. He noted the National Science Foundation has identified a "design process paradigm shift" which CASA is addressing in a partnership with Industry and the government. A new systems methodology is being developed at Georgia Tech: *Integrated Product/Process Development (IPPD) through Robust Design Simulation.* This methodology is being used in the Aerospace Program in Aerospace Systems Design at the University.

Members of the Executive Committee endorsed such partnerships, indicating they felt that partnerships between universities and companies in particular could be very rewarding to both sides. They indicated their companies were increasingly partnering with just a few academic institutions rather than spreading their support among many. They suggested more of this type of approach (true partnerships between the engineering companies and the academic engineering institutions responsible for teaching (affordable) design processes and theories) should be undertaken. Committee members also endorsed the idea that engineering curricula should see more linkages with how products are actually moved through the manufacturing process within the factory, with each manufacturing process being modeled and examined from an affordability view and others as well. Dr. Schrage indicated that was coming, and that the Practice-Oriented

Master of Science degree in Aerospace Systems Design, Synthesis, and Analysis was a good step in that direction. This degree includes systems design courses as well as instruction in and practice in the use of IPPD theories and principles.

Mr. Eddie McClendon (Chairman, I-ATF Sustainment Team Chair and Manager Logistics Requirements and DoD Industry Liaison, Raytheon) on the Air Force Affordable Avionics Initiative (AAI) Study:

This USAF effort originated over a year previously with the Eagle Look examination of Air Force's problems with avionics. In this AAI Study the Aeronautical Systems Center (ASC) has asked Industry to tell them what incentives are needed to get better performance from avionics contractors, how to change source selection criteria, and provide suggested model contract language to enable the Air Force to better contract for affordable support of new and legacy avionics systems. A "hot button, high payoff" issue for ASC is to develop suggested performance-based contract language for program documents that will form the contractual basis for delivery of total ownership cost (TOC) performance. The task for the Industry AAI Working group is to develop suggested methodology for identifying TOC "best value" proposals for systems that will be undergoing future changes beyond currently proposed changes (e.g., C-130, KC-135, C-5, etc.).

Mr. McClendon and the members of the Executive Committee discussed what "open systems" meant with respect to this study. It was noted that "open systems" was a concept that many in Industry opposed, for a variety of reasons—one of which being that O/S makes it easier for the USAF to break out components to other suppliers than the OEM. Also, the Air Force wants "open systems" to apply down to the component level—for both new and legacy systems. While "openness" is good (although there are intellectual property rights issues) in general, it may or may not bring affordability. The Executive Committee noted that the Services are not necessarily looking for a fully open system all of the time. "Modular systems" is the term that should be used rather than "open system." Modular systems concepts when properly implemented get at least 90 percent of the benefits of a fully open system without the baggage (IPR, etc.). The team needs to get this idea across to the Air Force—the "modular systems approach' rather than the "open systems approach" is the way to go. It was noted that there should be a chart to provide the accepted definitions of "open systems' and "modular systems" in order to highlight the differences.

The Air Force approach for avionics source selection criteria (specifically, the AF inputs into the acquisition planning baseline) includes an Integrated Change Roadmap (ICR). This is not necessarily provided to Industry now, but it must be in the future if Industry is to be a partner in effective evolutionary acquisition. The ICR must include:

- Projected total procurement quantities and the time frame over which they will be purchased,
- Projected technology insertion/capability and the timeframe for the insertion, and

- A suggested logistics plan that matches the ICR and including the planned repair approach/concept and spares requirements.

The other inputs by the Air Force into the acquisition planning baseline include the identification of a life cycle cost (LCC) model to be used for affordability analyses. This should include the identification of major parameters used and should be provided to the contractor(s) at no cost. The LCC model should also use the same parameters as are used for the metrics in the performance phase of the contract. Thus if anyone tries to fool the model to win in the beginning, then they will (rightly) suffer in the contract performance phase. Additional inputs from the Air Force include the statement of objectives including key performance parameters (KPPs).

The final area of Air Force inputs into the acquisition planning baseline include the type of contract; the Air Force's willingness to accept alternate approaches with regard to technical, contractual, logistical, incentives, and other areas; and the use of best commercial and business procedures and processes. Executive Committee members noted that incentives were very important. There is a strong need for incentive-based contracting that rewards both the government and the contractor for achieving savings.

Mr. McClendon indicated that in regard to evaluation factors that roadmaps are critical for Industry (vendor) insight into technology directions. When evaluating the technical approach the evaluation factors should include foremost the degree to which mission requirements, KPPs, etc are met. However, the evaluation should then look at the contractor's use of a modular systems architecture; use of high fidelity simulation; utilization of IPPD and CAIV throughout the proposed program; and the proposed technology insertion concepts (to meet increased capability needs in the future, combat component obsolescence, etc.) without the need for radical redesign and subsequent cost impacts. Mr. McClendon noted technology insertion concepts will be key to saving maintenance dollars that can then be put into further modernization. Committee members agreed.

Mr. McClendon then indicated the evaluation factors should include an affordability approach rather than cost and price. Affordability should be a weighted minimum of at least 25 percent. When using the affordability approach, costs should be looked at and evaluated based on life cycle cost analysis, i.e., minimum life cycle cost (for a given capability) versus initial acquisition cost. This cost should be evaluated with reference to a period of time such as an expected service life of the system or subsystem of interest. Cost and price (using economic value analysis) do not need to be focused on because they are subsumed in the affordability approach. Of course, past performance and risk must also be strong components of the evaluation factors. The Executive Committee members commented that this was a good approach but depended to a great extent on an accepted (by both sides) rationalized definition of affordability being agreed to.

From an Industry perspective, there are business incentives operating that needed to be looked at and the government needs to be aware of—and accommodate. A prime incentive for Industry is to achieve customer satisfaction. This is very desirable because

it is based on past performance and leads to future business development. Reduced total operating cost (RTOC) and affordability arrangements (i.e., legacy systems support) should be characterized by long-term contracts (provides a longer term revenue stream which will encourage Industry to invest for the long term); private/public partnering (trust, sharing of costs and benefits); a performance based business environment, and moving to a price-based versus cost-based approach. Committee members commented that the partnering would probably have to include government depots whether Industry liked it or not—realistically, the Depot Coalition is not going to go away. Mr. McClendon agreed and went on to note that partnering meant cost, cost savings, and risk will have to be mutually shared. Also, the process by which the current defense acquisition system solicits, examines, and then implements affordability solutions will have to be drastically accelerated. He further noted the DoD has a very dismal performance/responsiveness record in the timely evaluation and implementation of affordability innovations and solutions.

Based on Mr. McClendon's experience with the DoD and the collective experience of his team members, it was clear that the Government does not (as a rule) understand commercial-type incentives. However, performance based (mainly financial) incentives (as well as penalties/disincentives) must be institutionalized if affordable avionics support is to be a reality. Also, the current DoD weighted guidelines that call for a maximum of 11-18 percent profit could never be imposed (purchase price is important, not provider cost!) in the commercial business world—and commercial-like processes are what has to be used if the DoD really wants to enter into the commercial business world and apply commercial-type practices in its dealings with Industry. The Executive Committee members indicated they realized that incentives would increase the front-end cost but also indicated the effect on lowering total cost would be well worth the front-end expense. Mr. McClendon and the Committee members agreed that DoD and Industry must continue to work to eliminate the many impediments to efficient business practices imposed by Congress and the many onerous (and inefficient) regulations imposed by DoD when a Cold War mentality prevailed. Members of the Executive Committee suggested the report back to the Air Force should be structured to show (a) what Industry could do without changing laws (just regulations) and (b) what could be done to achieve maximum benefit.

The audience for the Working Group's Affordable Avionics Initiative report includes the Aeronautical Systems Center at Wright-Patterson, NATO, Industry, Air Force Materiel Command, and the Office of the Secretary of Defense. Congress might also be interested. The members of the Executive Committee expressed their satisfaction with the current progress of the AAI effort and requested a presentation on the draft report be given at the next meeting ***(Action: NCAT and Mr. McClendon)***.

Mr. James M. Sinnett (Chairman of the Executive Committee of the Multi-Association Industry Affordability Task Force and Vice President Strategic Development, The Boeing Company) on the Chairman's Assessment and Other Topics:

In his capacity as Chairman of the Multi-Association Industry Affordability Task Force Mr. Sinnett had been invited to attend the recent meeting of the DoD Affordability Task Force. He gave a report on what he found important from that meeting.

- The DoD Task Force heard about an Air Force/James Gregory Associates proposal to establish web-based project rooms for various programs and projects. This would enable a virtual cooperative environment for contractors, testers, program offices, and others involved in a particular effort.
- The Dual Use Science and Technology (DU S&T) program and the Cost of Operations and Support Savings Initiative (COSSI) program are very good tools for affordability-based systems. The issue and the promise are "how to take advantage of commercial technology for DoD systems?"
- It is very encouraging that affordability has people's attention. We heard today and at the DoD Affordability Task Force meeting that affordability will be an area of emphasis for the new team in DoD.
- Mr. Sinnett indicated he was bothered that the Air Force may have trouble with internalizing the James Gregory approach that emphasizes IPPD, web-based project rooms, etcetera—just because it is run by a contractor.

Mr. Sinnett reviewed for the members of the Executive Committee what he had discussed with the DoD Affordability Task Force members.

- Simulation Based Acquisition (SBA). Simulation based acquisition within DoD is in very bad shape. If DoD does not "get its act together and get its arms around this issue" then the DoD will get whatever contractors come up with. It will suit the needs of the contractor but it may not be portable and it will not make DoD happy. SBA will be an enabling tool for evolutionary acquisition and if it is not brought along then the cause of evolutionary acquisition will suffer for it.
- Technology Readiness Levels (TRL). TRLs need to be fully defined and understood by Government and Industry. There has to be a common understanding of what each TRL means and that understanding should be based on the viewpoint of the person/entity that will be using the technology. He noted that Commercial Industry has very little understanding of TRLs as DoD is planning to use them. For example, what is a reasonable Level Six in the eyes of DoD is very high risk (Level Two) to Commercial Industry folks.
- As a group, the I-ATF should start working SBA and TRLs with the Department of Defense within the context of how they fit in with evolutionary acquisition. There is a need for the I-ATF to make a presentation to the new administration on how Industry can help in institutionalizing SBA and TRLs. As an aside, Mr. Sinnett indicated it was his strong opinion that the responsibility for SBA should be placed within the Office of the Deputy Under Secretary of Defense (Science and Technology). Dr. Schrage indicated he would like to take the lead on this issue and Mark Gordon of NCAT will work with Dr. Schrage ***(Action: Dr. Schrage and Mark Gordon, NCAT).***

- Sustainment. Manufacturing technology is increasingly important to sustainment. Processes being developed and used for production operations need to find their way into sustainment operations. There is a need to take a hard look at the lean sustainment part of the Lean Aerospace Initiative and seen how it can offer benefits to both Government and Industry. Mr. Sinnett noted that the Joint Defense Manufacturing Technology Panel (JDMTP) has a new leader (Mr. Gary Waggoner from the Air Force). The Sustainment Working Group, which was more of an ad hoc group with no permanently assigned portfolio, has been raised to a Sub Panel with its own portfolio and budget.

Mr. Sinnett then discussed the need for a new Chairman of the Executive Committee. NCAT has the primary responsibility of finding candidates but would appreciate any suggestions/nominations from the members of the Committee. Mr. Sinnett indicated he would remain as Chairman until his retirement from Boeing is effective (April 1, 2001 or until a new Chairman accepts the position, whichever comes earlier). (Notè: Subsequent to this meeting and prior to Mr. Sinnett's retirement, Mr. Phil Odeen, Executive Vice President, TRW, Inc., accepted the Chairmanship of the Executive Committee)

At Mr. Sinnett's request the members of the Executive Committee approved the minutes of the previous (October 2000) meeting and agreed that the next meeting would take place after the selection of the new Chairman (probably in May or June).

Mr. Sinnett again said how much he appreciated the kind remarks of the other members of the Committee regarding his tenure as Chairman, as well as the remarks of Mr. Siegel, Mr. Douglass, and Dr. Etter as well as the commemorative gifts given by NCAT and the Task Force. He indicated he would be available to discuss issues with the members of the Committee regarding affordability and the activities of the Task Force in the future.

There being no further business, the Executive Committee adjourned at 3:30 p.m.

INDUSTRY AFFORDABILITY TASK FORCE
EXECUTIVE COMMITTEE MEETING—June 13, 2001

Will be held in the Aerospace Industries Association's Goddard Conference Room
Located at: 1250 Eye Street, NW, Suite 1200
Washington, DC 20005

Continental Breakfast and Full Lunch will be served

AGENDA

9:30 – 9:45	Welcome & Introduction of New Chairman	John Douglass
9:45 – 10:00	Chairman's Remarks	Phil Odeen (TRW)
10:00 – 10:30	Status of DoD Affordability Program	Dan Cundiff (OSD)
10:30 – 10:45	**Break**	
10:45 – 11:30	GAO Study on Best Practices for IPTs	Gordon Lusby (GAO)
11:30 – 12:00	Legislative Update	Jon Etherton (AIA)
12:00 – 1:00	**Working Lunch** • Team Report: MOSA ISG - JTA • NCAT Update	 Reg Varga (Boeing) Mark Gordon/Kevin Lewis (NCAT)
1:15 – 1:45	DoD Interoperability Program Update	Dr. V. Garber (OSD)
1:45 – 2:30	NRC Aging Avionics Study: Implications for Affordability	Noel Longuemare, Bob Cattoi
2:30 – 2:45	**Break**	
2:45 – 3:15	Team Report: Affordable Avionics Initiative Study	Eddie McClendon (Raytheon)
3:15 – 4:00	Task Force Business • Approve Minutes from Last Meeting • New Executive Committee Chairman's Vision • Future Areas for Task Force Studies and Emphasis • Review Subjects for Potential Affordability Studies funded by OSD	Phil Odeen (TRW)
4:00	**Adjourn**	

Draft Minutes of the
Industry Affordability Task Force
Executive Committee Meeting
at the
Offices of the
National Center for Advanced Technologies
Washington, DC

June 13th, 2001

The Industry Affordability Task Force (I-ATF) Executive Committee met on June 13th, 2001 from 9:00 a.m. to 3:30 p.m. to review ongoing team activities and to meet with officials of the Department of Defense and the general Accounting Office.

Government representatives present included: Mr. Butch Ardis (Aeronautical Systems Center), Mr. Dan Cundiff (Office of Technology Transition, OSD), Dr. V. Garber (Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics), and Mr. Gordon Lusby (General Accounting Office).

Executive Summary:

- Welcome of New Executive Committee Chair: Mr. Douglass began the session of the Executive Committee by welcoming all of the members and especially the new chairman. He introduced Mr. Phil Odeen as the new Chairman of the Executive Committee.

- Chairman's Remarks: Mr. Odeen told the members of the Executive Committee that he was very pleased to be their new Chairman. He went on to note that these were tough budget times in both the Federal Government and in the Industry. There is enormous pressure on all of us to pay close attention to affordability—we must all drive costs down. Mr. Aldridge, the new Under Secretary for Acquisition, Technology, and Logistics has set new goals. Mr. Odeen noted that Mr. Aldridge wants to fully and realistically fund acquisition programs rather than relying on Industry to make up the difference or to under fund programs and then "pretend" everything will turn out O.K.

- DoD Affordability Program and Transitioning S&T: The perception of many in the S&T community is that their job is complete at the end of the technology development stage and implementation of the technology is the customer's responsibility. There is obviously a gap that needs to be bridged and funding is needed for this—the funding may not be large but it is essential. The new DoD 5000-series spells out for the first time S&T's role in evolutionary acquisition. It gives the S&T community a new charter and incorporates lessons learned. S&T will have a greater role upfront in systems acquisition, particularly through use of

technology readiness levels (TRLs). Technology Readiness levels (TRLs) are now being employed in the DoD S&T program. There had been little, if any, Industry involvement in setting up these TRLs. The DoD TRL IPT will develop a framework and guidelines for consistent implementation of TRLs and the IPT will seek comments from Industry once they have a product. The Deputy Under Secretary of Defense (Science and technology) will be the independent evaluator for TRLs.

- GAO Study on Best Practices for Integrated Product Teams: The study employed a case study approach. Three commercial programs and one DoD programs were looked at, and four case studies of DoD programs experiencing problems were examined. The hypothesis was that the problems were caused by poor IPTs.

  The study showed the key factors common to effective IPTs were the knowledge (the expertise was available to recognize issues and potential problems) and the authority (the ability to do something about and take action on problems) in the IPTs. It was also shown to be beneficial when there was co-location, which fostered trust, information flow, shared knowledge, and unity of purpose; and when there was control over IPT membership, which fostered commitment and empowered the team leader. Of twelve ineffective program IPTs examined (eleven government, one industry) by the GAO study, seven did not have the authority to do their job, five did not have the necessary knowledge (did not have the right members—often did not have even one industry representative), and none were in fact true IPTs (rather, they were committees). Also, the IPTs did not collocate nor did they control their own membership.

  The GAO concluded that IPTs work, but they take knowledge, corporate commitment, and authority to be successful. In general, commercial firms ensure IPT implementation at the product or program level. DoD has adopted IPTs in the sense of policy commitment, but has left implementation to individual programs. The GAO recommended that IPTs should only be designated for those teams that have day-to-day responsibility for developing and delivering a product (too many IPTs are in name only—they are really a committee without authority). Once a true IPT is designated, it must be awarded sufficient knowledge resources and authority to make a decision. IPTs must then be supported with the resources (IT, training, collocation, expert assistance as needed) required to maximize their effectiveness.

- Legislative Update: The change in leadership (Republican to Democrat) in the Senate has produced some changes. In particular, the DoD can expect a lot more oversight and there will be considerably more Congressional pressure on OSD with regard to management and management reform issues. The emerging priorities are procurement and research and development. Within both NASA and the Department of Defense it is very important to get these dollar categories moving in the up direction. The Commission on the Future of the Aerospace Industry is getting started late because of delays in the change in Administrations.

Because of the late start, there needs to be a legislative fix to the original legislation that established the Commission to extend the date the Commission goes out of business. Exports licensing procedures and delays have been a sticking point between Industry and the Executive branch and the Congress. The change in control of the Senate may actually help with this problem. With regard to acquisition reform, there may be some action on minor issues. Issues that could be addressed to some degree include service contracting, the acquisition workforce, technology transition and insertion, and the recommendations of the DSB regarding the health of the defense industrial base.

- NCAT Modular Open Systems Study and the Joint Technical Architecture: The ISG is providing an Industry critique of the JTA because information dominance is a principal objective of the nation's defense strategy. Industry can and should help define true interoperability requirements. Industry should also take the lead in defining and implementing domain specific architecture. Industry's perspective will provide the basis for innovative and continued improvements over time.

  With regard to JTA affordability, Industry's views are absolutely essential. DoD's current emphasis on standards alone will not solve the interoperability challenges. The JTA has become a compendium of specifications with regulatory impact on how industry does business and designs/acquires systems. The JTA focus has enlarged to encompass interoperability. In general the ISG feels Industry has been not invited to and has generally been absent for most of the JTA development effort. Industry supports interoperability strongly but questions the current methods.

  There has been an explosive growth in the number of standards to be included in the JTA. Emerging standards were not supposed to be included but that is not now the case. The complexity is becoming extreme and close to unmanageable. The JTA should address platform-to-platform interoperability only and set standards only for these. It should not address intra-operability. The JTA guidance and standards should be organized by domains and be defined/managed by domain experts. The JTA should also be used to help define systems-of-systems architectures and related system operational requirements. The system's compliance should be with respect to specific operational requirements. This is a key point—the JTA should not be a mandated compliance document.

  With respect to JTA management, there must be a complementary effort to develop both the operational architecture and the concept of operations. It is very important that management focus on all domains instead of a specific domain such as C4I. The ISG desires that the briefing be presented to Mr. Aldridge. Industry has a big stake in the JTA, not just the Department of Defense. Huge product bottlenecks are associated with (the lack of) interoperability. This ties into affordability. Appropriate folks in AFCEA, NDIA, and other interested

Industry organizations should be made aware of this NCAT ISG study **(Action: NCAT, Mr. Varga).**

- Update of the DoD Interoperability Program: The DoD has settled on one definition of interoperability: "The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together." The existing architectures (JTA, et al) are insufficient. There are some embryonic architectures such as for National Missile Defense, where systems architectures are needed. System of systems implementation is inadequate. Within the systems acquisition community, system of systems is also not there yet. There has been a focus mainly on specific systems. How to do systems of systems architectures and implementation has not really yet been figured out. The Directorate of Interoperability has in its portfolio of responsibilities the management, acquisition policy, and oversight with respect to interoperability (including DAES reviews), key interoperability enablers, and several enablers.

  Connecting warfighting units together on the battlefield makes them necessarily interdependent. This battlefield interdependence requires in turn interdependence in engineering and acquisition activities. Thus the lack of a current unified, disciplined Joint System engineering approach among the services has resulted in warfighting capability shortfalls. Conclusions are that: (1) Interoperability is effective Joint and combined operations (if there is no interoperability there will not be effectiveness), (2) there is a strong need to build mission area systems of systems capabilities, (3) the FIOP will be key to implementing decision superiority, (4) interoperability efforts must evolve in cooperation with Industry, and (5) commercial IT technology and processes must be harnessed and adapted for DoD use, and the processes must be coalition-friendly.

- The NRC's Aging Avionics in Military Aircraft Study: This particular study was requested by SAF/AQ because Air Force fleet readiness is markedly declining (repair parts not available, diminishing manufacturing sources (DMS), obsolete parts), declining skill levels (software) in support activities), and there was a need for avionics performance upgrades (new mission requirements and air traffic control requirements). It is clear that new avionics designs will have to mitigate such issues. This implies the need for opens systems/modular architectures. Avionics is now the number one maintenance issue in the Air Force. The studies findings include:

  - An enterprise strategy is needed. There is no DoD-wide or Service-wide strategy for dealing with the aging/obsolescent avionics problem. Technical expertise within the DoD's deport support as far as state-of-the-art avionics is concerned is eroding as the work force ages and retires.

  - The JTA has been overextended beyond what is needed for inter-platform interoperability. Also, the extension of JTA into intra-platform standards is

not consistent or integrated with MOSA approaches for addressing aging avionics.

- Configuration management is a problem. Modifications and upgrades of aging avionics are proceeding in such a way that aircraft (even of the same type) have different capabilities and compatibilities.
- Long acquisition and upgrade cycles require that avionics also be subject to technology refresh cycles. Some aircraft's development cycles have become so extended that the planned avionics technologies become outdated before the aircraft is even fielded.
- New acquisition approaches are needed. The traditional mindset of acquiring hardware and software will have to be changed to one of acquiring functionality. The protection and value pricing of a supplier's intellectual property will be a key to success and will require workable business models.
- It is very important to note that as the DoD/USAF rely more heavily on commercial-derived or off-the-shelf hardware and software, the expertise and intellectual property necessary to upgrade/modify/maintain these systems will increasingly have to reside in the commercial sector.

- The Air Force Affordable Avionics Initiative Study: Mission Capable rates in the Air Force have declined 10 points in the past 10 years and avionics operation/maintenance costs are forecast to increase 50 percent in the next five years. The Study recommends that affordability goals should be established at the onset of the acquisition process and that solicitations should emphasize affordability as a key performance parameter. Total ownership cost metrics should be set based on USAF affordability goals and incentives defined in terms of identified contract metrics.

  The tough challenge will be to create Integrated Change Roadmaps with Industry's participation. This will be hard because it asks the Air Force to predict new upgrades and new technologies for the next 20-30 years. The study also recommends that alpha-based contracting be adopted, to include the development of sections L and M of the proposal. In an IPT-based environment both Industry and the Government should work the solicitation together. The study also recommends that there be more flexibility in the use of funding types within a particular program (the "color of money" issue that has been raised earlier).

  The Industry study strongly recommends that Industry be established as the product custodian of DoD product support for the entire life cycle of the avionics system. Responsibility, accountability, and risk should all be transferred to the contractor (this will require higher allowable profit margins). As long as the overall top line cost goes down, profits are not the concern of the Government. The use of existing acquisition tools such as VECPs, performance-based logistics, and cost as an independent variable should be increased.

It is important to partner with Government depots—they are not going to go away. The use of partnering between DoD and Industry is important throughout a weapons system's life cycle. Competition should be used judiciously. It is appropriate at certain levels and times, not appropriate at others. Industry is convinced that competition is by its basic nature disruptive of long-term partnerships. You cannot have effective long-term partnerships and have continuous competition.

The Honorable John W. Douglass (Chairman of the Board of The National Center for Advanced Technologies, President and CEO of The Aerospace Industries Association of America, Inc.) for the Introduction and Welcome of the New Chairman of the Executive Committee of the Multi-Association Industry Affordability Task Force:

Mr. Douglass began the session of the Executive Committee by welcoming all of the members and especially the new Chairman. He introduced Mr. Phil Odeen as the new Chairman of the Executive Committee. Setting the stage for the new Chairman, he noted that we are in an extraordinary period of transition and the role of the aerospace industry is pivotal. The Aerospace Industrial Base has virtually taken over the Defense Industrial Base—the terms are coming close to being the same as aerospace firms merge with and/or acquire other defense firms. He noted the Aerospace Industries Association represents the entire defense base—armor, aircraft, missiles, ships, etc.

The global economy is becoming the most demanding area of the aerospace companies' market, and also the fastest growing. At the same time DoD's need for sophisticated equipment is overlapping the commercial market. Civil-military integration in some companies is happening to a large degree. As defense dollars shrink as a percentage of the Gross Domestic Product, the defense firms must begin to take a greater interest in affordability. Aerospace affordability efforts have in large measure been responsible for the aerospace industry productivity growth rates well exceeding the norm for the United States.

Mr. Douglass noted that Mr. Odeen has been in many Government/DoD and Industry areas and has a varied background. He has not been "stovepiped." Rather, he is a rare individual who has had a distinguished career in both Government and Industry, including in particular his time as CEO of BDM, Inc., positions on the National Security Council, and in the Office of the Secretary of Defense. Mr. Odeen was also the Chairman of the recent Defense Science Board Study of the Health of the Aerospace Industry. The CEOs of the AIA rated this study as the best piece of work to come out in a very long time. Mr. Douglass indicated he personally was extremely grateful that Mr. Odeen is willing to give his time to advance the cause of affordability and the Industry Affordability Task Force.

Chairman's Opening Remarks:

Mr. Odeen told the members of the Executive Committee that he was very pleased to be their new Chairman. He indicated he knew many of them and looks forward to meeting and working with the rest of the Committee members. He went on to note that these were tough budget times in both the Federal Government and in the Industry. However, there is a chance to influence the FY 2002 budget via various add-ons. There is enormous pressure on all of us to pay close attention to affordability—we must all drive costs down. Mr. Odeen concluded by saying he was looking forward to the day's session, which included many good topics on a very busy agenda.

Mr. Dan Cundiff (Associate Director, DoD Office of Technology Transition) on the Status of the DoD Affordability Program and Transitioning S&T Programs:

Mr. Cundiff started by pointing out that his briefing was changed to emphasize transition over affordability, with the implicit proviso that affordability was essential to successful transition of technology to the customer. He introduced his topic by noting that there was a strong need to have S&T engineers in the labs thinking much more like systems engineers, and not just trying to invent new things. The goals of the new administration as they affect his area of responsibility and that of the Office of Technology Transition are that there has to be excellence in acquisition, logistics, and technology areas. There needs to be less study of acquisition reform and instead more accomplishment of acquisition reform in order to achieve excellence.

Mr. Cundiff brought the Executive Committee up to date on the latest personnel moves within the DoD acquisition bureaucracy. Mr. Michael Wynne will be replacing Mr. Oliver as the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics). Mr. Odeen noted he was personally acquainted with Mr. Wynne. He is knowledgeable, knows the issues, and is effective and low key. Mr. Odeen briefed him on the DSB Study and found him to be receptive to Industry's problems. Dr. Ron Sega will be the new Director, Defense Research and Engineering (DDR&E), replacing Dr. Marks. Dr. Delores Etter, the Deputy Under Secretary of Defense (Science and Technology) will be leaving her position at the end of June and taking an endowed Chair position at the U.S. Naval Academy in Annapolis. Mr. Aldridge has not yet been briefed on S&T and affordability issues.

Mr. Cundiff then went over the goals set by Mr. Aldridge, the new Under Secretary for Acquisition, Technology, and Logistics. Mr. Odeen noted that Mr. Aldridge wants to fully and realistically fund acquisition programs rather than relying on Industry to make up the difference or to under fund programs and then "pretend" everything will turn out O.K. Mr. Aldridge wants to:

(1) Achieve credibility and effectiveness in the acquisition and logistics support process,

(2) Revitalize the quality and morale of the DoD ALT workforce (there have been enough losses of DoD's acquisition workforce, there is a need for training for current employees and to bring on new workers),

(3) Improve the health of the defense industrial base (Wall Street is not investing in defense firms, there is a need for new talent in the defense industry),

(4) Rationalize the weapons systems and infrastructure with defense strategy (ALT needs to be brought into line with the new policies of the Secretary of Defense), and

(5) Initiate high leverage technologies to create the warfighting capabilities, systems, and strategies of the future (DARPA will be looking even further ahead, the S&T budgets will be increased—probably to about 3% of TOA, or about an $800 million increase per year).

Mr. Cundiff commented on the emphasis (or sometimes lack thereof) on transition in Science and Technology. The perception of many in the S&T community is that their job is complete at the end of the technology development stage and implementation of the technology is the customer's responsibility. There is obviously a gap that needs to be bridged between the 6.3 Advanced Technology Development arena (the end of S&T) and the 6.4 Program Development and Risk Reduction arena (the start of development). Funding is needed for this—the funding may not be large but it is essential. Committee member suggested the time for a "pot" of unallocated technology transition funding has come and would help solve this problem.

According to Mr. Cundiff the new DoD 5000-series spells out for the first time S&T's role in evolutionary acquisition. It gives the S&T community a new charter and incorporates lessons learned. S&T will have a greater role upfront in systems acquisition, particularly through use of technology readiness levels (TRLs). Committee members noted that if you were to look at the early NCAT work on IPPD and Evolutionary Defense Acquisition, then much of this work has been incorporated word-for-word in the new DoD Directive 5000.2, Operation of the Defense Acquisition System. He also discussed with the Committee members the technology transition programs operated/overseen by his office, including the Dual Use Science and Technology Program, the Small Business Innovative Research (SIBR) Program, Manufacturing Technology (ManTech), the Commercial Operations and Support Savings Initiative (COSSI) Program, Title III (the Defense Production Act), and the Independent Research and Development (IR&D) Program. The total budget for these programs is almost $900 million per year, plus $2.8 billion of leveraged Industry IR&D funding.

Mr. Cundiff then described the DoD Affordability Task Force, which was chartered in 1995 with the mission of improving the strength of affordability in DoD S&T programs. Its first recommendation was to use IPPD/IPTs in S&T. The basic objective and desired end result was to move S&T products faster into weapons systems. Its first program review of 20 Service S&T programs showed only two making good use of affordability principles (IPTs, metrics, transition emphasis, etc.). However the Air Force in particular has worked hard on IPPD for its S&T community and current reviews show much better results. The emphasis has been and will remain more on 6.3 and ATD program managers, much less emphasis on those running 6.1 and 6.2 projects.

The activities of the DoD Affordability Task Force center around:

- An annual affordability program review of about 20 Service S&T programs (5-6 per Service to identify best practices and lessons learned). The Army is doing very well and the Air Force is coming up fast. The Navy is not doing well, does not emphasize IPPD. The Committee asked what was being done about the Navy and Mr. Cundiff indicated he was still doing missionary work with them—the trick is to find the right person with influence who will then "make it happen."
- Educating the S&T workforce (e.g., developing pilot training courses, affordability guidelines passed on through an affordability handbook and White Papers). These courses are open to Industry—just contact Mr. Cundiff and he will make it happen. The problem sometimes is that S&T managers want to be inventors, not necessarily managers.
- Getting the affordability word out (through conferences and symposia such as the NCAT Affordability Conferences, the PEO/SYSCOM Workshops, and the Defense Manufacturing Conference). The Affordability Conferences are held every year to a year-and-a-half. The attendance is about 50/50 Industry and Government. Success stories and best practices are shared.
- Doing a program assessment (FY 1997 and FY 2001 Survey of S&T Managers). Committee members asked what was being done to make a difference to program managers and programs. The 1997 survey showed very mixed results. S&T managers knew S&T practices but were not implementing them. S&T managers agreed metrics should be employed but nothing had been implemented (still true for the most part today). A new assessment will document the progress made since then. Committee members noted that the affordability measurement problem can be that there is/was not a very good handle on previous costs. It can be hard to measure affordability improvements; especially without a fine enough cost granularity visibility. Mr. Cundiff noted the same was true in Government as well.
- Mr. Cundiff noted that his organization wants to and is trying to institutionalize the process. This will probably take at least 10 years of continuous attention. The Members of the Executive committee agreed.

Mr. Cundiff went into some detail on the new Affordability Guide for S&T Program Managers. The guide defines technology transition and affordability, and covers evolutionary acquisition principles. It also identifies the key elements needed to achieve transition (identify and team with the customer, plan for transition, and consider affordability early). The Committee asked how the transition programs in his office were doing. Mr. Cundiff noted the DUS&T program might be on the way out unless certain budget issues are resolved and that the COSSI Program has been zeroed by the Services (there is $10 million per year still in the OSD budget line). Mr. Odeen mentioned the COSSI Executive Roundtable, which had met just a few days earlier. The members of the Executive Roundtable had recommended the COSSI Program be continued and be allocated much more funding. Mr. Cundiff went on to say that funding for ManTech was relatively stable but under fire. The ManTech program has had help in the past from Industry Associations to get rid of earmarks, which were hurting the ManTech program.

However, Service ManTech budgets are decreasing. The Committee members indicated they were also worried about ManTech earmarks returning, which would result in the "pork" image again being applied to ManTech. It may be time for another set of Roundtables between Industry, DOD, and Congressional staff.

Another way to encourage affordability and transition, according to Mr. Cundiff, was to effectively recognize successful affordability efforts. His organization has established an S&T Transition Affordability Award. It is presented each year and includes a cash award.

Technology Readiness Levels (TRLs) are now being employed in the DoD S&T program. These originated in NASA and have been incorporated in the new DoD 5000-series acquisition documents. The Executive Committee members noted there had been little, if any, Industry involvement in setting up these TRLs. And, there was no Industry involvement in the TRL IPT being set up by the Defense S&T Advisory Group (DSTAG). The IPT will develop a framework and guidelines for consistent implementation of TRLs and the IPT will seek comments from Industry once they have a product, according to Mr. Cundiff. He noted some examples of the Army's use of TRLs and IPPD—and emphasized that there was a relationship between the two. Committee members noted there was a considerable difference in how Industry and the DoD viewed TRLs. What DoD considered a TRL of 6-7 (ready for transition), Industry would consider a TRL of 2-3. Much depends on the definition of brassboard and breadboard. Also, there may have to be separate TRLs and definitions for software compared to hardware. Mr. Cundiff indicated the Deputy Under Secretary of Defense (Science and technology) would be the independent DoD evaluator for TRLs.

Mr. Cundiff told the Committee members there were several areas in which Industry could be of assistance in this whole TRL process. The first is to help work towards consistent and open TRL definitions and assessment processes. The second is to continue to require affordability methods for partners and sub-tier suppliers. The third is to emphasize transition within Industry organizations.

Mr. Odeen and the Committee members thanked Mr. Cundiff for his presentation and indicated they would be very interested in having the results of the FY 2001 survey presented when they are available. Mr. Cundiff indicated he would present those results—probably after the next (November) meeting.

Mr. Gordon Lusby (General Accounting Office) on the GAO Study on Best Practices for Integrated Product Teams:

Mr. Lusby thanked the Committee members for inviting him. He noted it was very interesting to hear the comments on IPPD and IPTs during the previous presentation because IPTs offer an opportunity to make improvements in affordability. He discussed the need for change in how weapons systems are developed. There is no mandate for change resulting from performance—the weapons used by the United States are the best

in the world. However, there has been sizable cost growth in weapons systems development programs. The cumulative cost growth on 15 development programs from their FY 1996 plans to their FY 2000 plans totaled over 20 billion dollars (that is, total cost grew from $65 to $85 billion for these 15 acquisition programs). This $20 billion increase in development cost could have been used for other purposes.

He noted that the need to apply best practices could shorten schedules, save dollars, and yield higher quality defense systems. He noted the difference between the best practices and DoD practices and questioned the reasons for the delta. This is why the GAO is doing its series of best practices studies. This particular study involves the use of Integrated Product Teams (IPTs). The objectives of the study were to determine:

- Whether and how IPTs affect decision-making and product outcomes,
- What factors are key to effective IPTs, and
- What environment factors are critical to the success of IPTs.

He also noted the GAO was blind to the fact that in the DoD an IPT is often constrained to work within the larger DoD context. The study employed a case study approach. Three commercial programs and one DoD program were looked at, and four case studies of DoD programs experiencing problems were examined. The hypothesis was that the problems were caused by poor IPTs. The GAO interviewed OSD and Service IPT policy officials, experts from academia and industry, DoD and commercial program managers, and over 100 DoD and commercial IPT Team Leaders and members.

Of the four successful programs studied, all cited IPTs as instrumental in achieving their favorable program outcome (Daimler-Chrysler reduced cycle time by 50%, Hewlett-Packard reduced cycle time 60%, the 3M company reduced cycle time 12-18 months, the Marine Corps AAAV was ahead of schedule and within cost projections). Four programs in difficulty on the other hand, all used IPTs (CH-60S Helicopter had a 122% cost increase and a 38% schedule delay, Extended Range Guided Munition had cost increases and a three year schedule slip, the Global Broadcast System had an 18 month schedule slip, and the Land Warrior Program had a 50% cost increase and a four year schedule delay). The GAO went looking to find the differences in the IPTs involved in these programs. In response to a question from the Committee, Mr. Lusby did indicate they did not look at any commercial programs that were in trouble (one reason for that might be that Commercial Industry was not particularly ready to discuss their failures).

Mr. Lusby indicated the main favorable characteristics of IPTs is relative to their decision making process. IPTs can make cross-functional decisions fast. Successful IPTs show this characteristic. In the failed DoD IPTs this was not obvious. Often the IPTs were such in name only. Necessary expertise was not on the IPTs. For the problematic programs, IPTs had to go up or outwards in order to get information and authority.

The study showed the key factors common to effective IPTs were the knowledge in the IPTs (the expertise was available to recognize issues and potential problems) and the authority (the ability to do something about and take action on problems). It was also

show to be beneficial when there was collocation, which fostered trust, information flow, shared knowledge, and unity of purpose; and when there was control over IPT membership, which fostered commitment and empowered the team leader.

Committee members commented that the AAAV program was the only one of the four successful IPTs that used simulation-based acquisition. Mr. Lusby noted the AAAV had many things besides IPTs, including simulation based acquisition, innovative use of information technology, technological maturity, the program management came from the technical community that had matured the technology, and there was a lot of emphasis on education.

The GAO indicated as there were common factors for effective IPTs so were there common factors that characterized ineffective IPTs. Of twelve ineffective program IPTs examined (eleven Government, one Industry) by the GAO study, seven did not have the authority to do their job, five did not have the necessary knowledge (did not have the right members—often did not have even one Industry representative), and none were in fact true IPTs (rather, they were committees). Also, the IPTs did not collocate nor did they control their own membership. The IPTs in Government suffered from a lack of training. In the DoD, program offices must budget for IPPD training and create training programs as needed. This was not done to any great extent.

Committee members asked if the Industry side of these "bad" programs would have been all right were it not for the "bad" Government teams. The GAO responded that Industry was not really part of the Government IPTs, communication was not good, and there were "divided" organizations that produced a "Government versus Industry" team structure. It was the opinion of members of the Committee with extensive IPPD/IPT experience that Industry IPTs that showed themselves unsuccessful would have turned out to have many of the same structural problems.

With regard to environment factors, the GAO noted that successful IPTs were operating in an environment where the corporate commitment to IPTs was demonstrated through action. The IPTs had control over their goals but were held firmly accountable. Also, there were business case incentives to reinforce use of IPTs. There was investment of capital and changes in the organizational structure as needed to facilitate the effective use of IPTs.

Where there were problems, the GAO noted the original program had been oversold and essentially, the original program was not and never had been fully executable. A Committee member commented "A bad program will beat a good team every time." The other members agreed. The problem programs showed a corporate commitment to IPPD/IPTs that ended with a statement of policy. The IPTs had little control over the goals set for them but on the other hand were not held accountable either. In general the business case incentives operating proved obstacles for effective IPTs.

The GAO concluded that IPTs work, but they take knowledge, corporate commitment, and authority to be successful. In general, commercial firms ensure IPT implementation

at the product or program level. DoD has adopted IPTs in the sense of policy commitment, but has left implementation to individual programs. This has produced "spotty" results. It is important not to just let IPTs "happen." They are too important to success. Rather, it requires continuous attention for effective government implementation. There are hundreds of programs that could use IPTs or use them better.

The GAO recommended that IPTs should only be designated for those teams that have day-to-day responsibility for developing and delivering a product (too many IPTs are in name only—they are really a committee without authority). Once a true IPT is designated, it must be awarded sufficient knowledge resources and authority to make a decision. IPTs must then be supported with the resources (IT, training, collocation, expert assistance as needed) required to maximize their effectiveness.

Committee members offered additional comments to the GAO after the main presentation had been completed:

- There is too much emphasis on Integrated Product Teams—there should be more balance with the integrated process. Process affects affordability. There was no mention of Integrated Process Teams. The participation of process personnel on the IPTs needs to be better emphasized. The GAO responded that teams intended to work on processes are still often called product teams. They agreed that often not all processes and stakeholders were effectively participating or members of the teams they examined (even some of the successful ones).
- IPT membership should change as the program moves forward from requirements, to development, to production.
- As far as day-to-day recommendations, is there anything in DoD policy that prevents effective IPTs? The GAO responded there was nothing they had found. However, they reiterated that IPTs must be given authority to do their tasks and must have realistic, achievable goals.
- When you have a team that is not empowered then you have an ineffective team.
- Teams have a very tough time trying to change something that affects an operational requirements document.

Mr. Odeen thanked the members of the GAO study team for their presentation. The GAO team also indicated they appreciated the comments and insights of the members of the Executive Committee.

Mr. Jon Etherton (Assistant Vice President for Legislative Affairs, Aerospace Industries Association of America) on an Update of Legislative Events for 2001:

Mr. Etherton gave a presentation on the current status of legislation and the Congress. He began by noting the change in leadership (Republican to Democrat) in the Senate had resulted in the addition of one Democratic member to each committee. He also noted this had resulted in a 25-member Senate Armed Services Committee (SASC) (one quarter of

the entire Senate). All of the committee chairs changed. In particular, Senator Carl Levin is the new chairman of the SASC. Senator Levin is known as a skeptic on National Missile Defense. There are not a lot of other changes except that the DoD can expect a lot more oversight and there will be considerably more Congressional pressure on OSD with regard to management and management reform issues.

He indicated that:

- The emerging priorities are procurement and research and development. Within both NASA and the Department of Defense it is very important to get these dollar categories moving in the up direction.
- The Commission on the Future of the U.S. Aerospace Industry is getting started late because of delays in the change in Administration. Because of the late start, there needs to be a legislative fix to the original legislation that established the Commission to extend the date the Commission goes out of business.
- Exports licensing procedures and delays have been a sticking point between Industry and the Executive branch and the Congress. The change in control of the Senate may actually help with this problem.
- With regard to acquisition reform, neither the SASC or the HASC will do very much—there are too many other issues to address. There may be some action on minor issues. Issues that could be addressed to some degree include service contracting, the acquisition workforce, technology transition and insertion, and the recommendations of the DSB regarding the health of the defense industrial base.

Mr. Odeen thanked Mr. Etherton for his presentation. Mr. Etherton invited any member of the Executive Committee to call him if they had any questions or needed more information.

Mr. Reg Varga, (Boeing, Chairman of the MOSA Industry Steering Group) on the ongoing NCAT Modular Open Systems Study and the Joint Technical Architecture:

Mr. Varga indicated he regarded this as a "dry run" for the final presentation. He noted their Industry Steering Group (ISG) had decided to tackle several issues in order starting with the JTA and moving on through MOSA, evolutionary acquisition, and business incentives. The ISG is structured as an independent assessment body to review key open systems issues. The membership of the ISG is a good cross section of Academia and Industry. Mr. Varga noted that this presentation represents the coordinated view of the ISG members and reflects inputs from all of the members.

The ISG is providing an Industry critique of the JTA because information dominance is a principal objective of the nation's defense strategy. Industry can and should help define true interoperability requirements. Industry should also take the lead in defining and implementing domain specific architecture—and the ISG feels this very strongly. Finally, Industry's perspective will provide the basis for innovative and continued

improvements over time. With regard to JTA affordability, Industry's views are absolutely essential.

Mr. Varga went on to discuss the JTA mission, which he noted was very simple and very clear, but not necessarily simple to achieve. He said that the ISG has observed that DoD's current emphasis on standards alone will not solve the interoperability challenges. It sets a function in place but does not get to the end goal. The ISG also notes the JTA has become a compendium of specifications with regulatory impact on how industry does business and designs/acquires systems. The JTA focus has enlarged to encompass interoperability. In general the ISG feels that Industry has been not invited to and generally absent from most of the JTA development effort. Industry supports interoperability strongly but questions the current methods.

The ISG has found that the JTA's effectiveness has been seriously compromised by the over-inclusion of hundreds of standards. The 350 mandated standards in version 3.0 have become a management and a design issue. The increased number of design standards can lead to their over-use and improper application. Finally, the original JTA management structure has been narrowly focused on C4I.

The question is, what are the "right" specifications to use. The original mandate for C4I and IT core minimum specifications was just one standard for each capability/service area. This was good. Also, only stable and mature standards were to have been mandated. Military standards were to be used only when there was no identified commercial standard or no commercial standard suitable for use. No legacy standards were included for backwards compatibility and emerging standards were to be identified for information purposes only. However there has been an explosive growth in the number of standards to be included in the JTA. There are 359 mandated standards and 228 emerging standards. The emerging standards were not supposed to be included but that is not now the case. The complexity is becoming extreme and close to unmanageable. In response to a question from a Committee member, Mr. Varga explained that an emerging standard is one that some Industry or Government group has posited will become a standard. However the JTA is not supposed to look at emerging standards because they are by definition not yet stable. In response to another query he noted a commercial approach is to apply recognized standards (emphasize recognized), apply it, check it against its effect on affordability, then use it.

According to Mr. Varga, the ISG's recommendations fall into two categories. The categories are (1) a clarification of the JTA role and (2) JTA management.

With regard to the first point, the JTA should address platform-to-platform interoperability only and set standards only for these. It should not address intra-operability. The set of mandated standards to be implemented in developing operational requirements for a specific platform should be minimized. Only domain specific interface standards that affect platform-to-platform interoperability should be included—not design standards (emerging standards and design standards should not be included). The OSJTF should facilitate the domain specific architectural guidance needed to define

intra-operability (this should not be a part of the JTA). The JTA guidance and standards should be organized by domains and be defined/managed by domain experts (e.g., the aviation community should be looking at standards for aviation and not anything else). The JTA should also be used to help define systems-of-systems architectures and related system operational requirements. The system's compliance should be with respect to specific operational requirements (the JTA should not be a contractual document and for program managers and contractors the JTA should at most be a reference document). This is a key point—the JTA should not be a mandated compliance document.

With respect to JTA management, there must be a complementary effort to develop both the operational architecture and the concept of operations. It is very important that management focus on all domains instead of a specific domain such as C4I. Affordable interoperability should be emphasized—this is what will allow and encourage Industry to innovate. Finally, the operation of the Architecture Coordination Council should be streamlined. There should be a single chair (recommend USD(ATL)) instead of the current co-chair arrangement that includes the J-6. The membership should also include acquisition representatives and the OSD Comptroller. Also, domain experts should be included.

Mr. Varga concluded by saying that the ISG desires that the briefing be presented to Mr. Aldridge, the new Under Secretary of Defense (Acquisition, Technology, and Logistics). The Panel asked if Dr. Garber (OSD Director of Interoperability) had seen the presentation and Mr. Varga indicated he had not, although he has been invited to do so (Dr. Garber has not yet been able to find time on his schedule).

Committee members noted that Industry has a big stake in the JTA, not just the Department of Defense. Huge product bottlenecks are associated with (the lack of) interoperability. This ties into affordability. A particular problem area is the software industry, where standards are used as a competitive tool. Both Industry and Government need to get together to address this issue. Also, a number of other activities (Services, NDIA, etc.) are looking at interoperability, which broadly defined is getting weapons systems to talk to each other. It was suggested and endorsed by the members of the Executive Committee that it would be worthwhile to ensure that appropriate folks in AFCEA, NDIA, and other interested Industry organizations are aware of this NCAT ISG study **(Action: NCAT, Mr. Varga).**

The Committee members thanked Mr. Varga for his presentation and endorsed his presenting the JTA briefing to Mr. Aldridge and/or his staff.

Mr. Mark A. Gordon (Director of Education Programs, National Center for Advanced Technologies) on NCAT's On-Going Activities—an Update and Mr. Kevin Lewis (Director of Defense Programs, National Center for Advanced Technologies) on Barriers to Affordability:

NCAT Ongoing Activities—An Update

Mr. Mark Gordon briefly reviewed NCAT's ongoing activities. First, there will be a DoD Affordability Review June 20-21. Twenty Service and DARPA S&T projects will be briefed to the DoD Affordability Task Force. There will be representatives invited from the Industry Affordability Task Force and from Academia.

Also, there are several proposed affordability studies to be accomplished using funding provided by Dr. Etter's office. Two of these are a look at the new Technology Readiness Levels and Simulation Based Acquisition. The TRL study would get Industry involved so that in a given program the Government wasn't characterizing the technology as being at one level where Industry at the same time is characterizing it as markedly higher or lower. This would involve the development of consistent definitions and processes. Mr. Gordon noted there was a DoD IPT looking at TRLs but that Industry was not currently invited to participate.

NCAT is involved in planning for the November 2001 Defense Manufacturing Conference. NCAT secured Mr. Burnham (Raytheon Chairman and CEO) as the Industry Keynote Speaker and secured several representatives to the Senior Statesman Panel. Members of the Committee were invited to submit any issues they would like to see addressed by the Senior Statesman Panel—the harder the better. Also, NCAT has been asked to explore the possibility of having another "ManTech Day on the Hill" event. The Industry ManTech Coalition has pretty much disbanded and will be unable to assist in the same way as they did a couple of years ago. Committee members noted that none of the Industry Associations had manufacturing committees to any significant degree. Also, companies are not interested (at the top level) in ManTech. However, the Committee members indicated they would assist if possible and that having a ManTech Day would be a good idea. It may have to wait until next year, based on the current Congressional calendar.

Mr. Gordon went on to note that other current on-going NCAT activities include:

- The Army ManTech Study, which involves an Independent Assessment of the Army's ManTech program with respect to the critical technology needs of the Army's Future Combat Systems. Phase One of the study will last about three months, Phase Two about four months. The end result will be detailed roadmaps (timelines and funding) for the Manufacturing Technologies needed to affordably produce and field the Army's Future Combat Systems.
- An Independent Review and Assessment of the DoD Commercial Operations and Support Savings Initiative (COSSI) by an Industry Executive Roundtable. This will be used by OSD to support the program (depending on results) and propose changes to legislation and DoD policies that govern the operation of the COSSI program. Mr. Gordon noted that the Executive Roundtable met the previous week and that the new Executive Committee Chairman, Mr. Odeen, is a member. Mr. John Douglass is the Executive Roundtable's Chairman.

- Support of the OSD Program Executive Officers' and Systems Command Commanders' Conference (PEO/SYSCOM). NCAT has recruited Industry CEOs to be on a Panel and is arranging for the usual Evening Panel (a panel of Wall Street Analysts this time) and is also arranging for a luncheon speaker. NCAT is also arranging for Industry attendance (about 70 slots will be available for Industry attendees out of a total attendance of about 400).

Barriers to Affordability

Mr. Lewis presented this as a possible outgrowth of the Affordable Avionics study being performed by NCAT on behalf of the Aeronautical Systems Center. There are many rules and mandates that have one intended effect that have instead or also caused unintended (adverse) consequences with respect to affordability. Because the potential results will go well beyond ASC (and because ASC doesn't have any funding) ASC recommends sponsorship by the OSD Acquisition Reform Office. NCAT has submitted a proposal and funding is pending.

Possible areas to be looked at include cost accounting practices, infrastructure reductions, regulations affecting public and private maintenance provisions, cost reimbursement formulas, multi-year funding, oversight practices, regulations affecting the incorporation of commercial technologies in military systems, and rules governing outsourcing of non-core functions (e.g., depot maintenance and IT services). The Government would like to see program specific case studies. However companies may not want to participate because the results would criticize their customers by name. The question is whether or not companies will be willing to "name names" with respect to their clients. It was suggested that the case studies could be disguised so they cannot be traced back to a particular company. If sufficiently sanitized and the companies had a chance to review the case studies this approach might be acceptable.

Mr. Ardis noted that they have received a lot of feedback on such topics as the 50/50 rule, acquisition reform, etc. He indicated the Government needed things/suggestions they could actually pull off, preferably without having to go to the Congress. There is a need to put together cases that show the unintended consequences and gives a framework thereby to work these kinds of issues with the Congress and with OSD. He suggested that past programs be used, not current major acquisition programs—these have too much baggage attached. This would provide a means to work both functional and structural reforms.

Mr. Ardis went on to mention the study needs to provide solid and specific facts and examples to cite, rather than broad conclusions based on anecdotal experience. There are not many current case studies available that can do this—none he knows of. There is a need for fresh data—and the place to look is in the Pilot programs, C-17, and other acquisition experiments. The challenge will be to define the analytical framework in which the cases would be set (i.e., what will be the metrics and sample size to use?). Many of the issues mentioned above have been seen before. However, a study such as

this could provide a fresh way to approach today's policy and decision makers in the Office of the Secretary of Defense.

Dr. Vitalij Garber (Director of Interoperability, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics) on an Update of the DoD Interoperability Program:

Dr. Garber began by noting the DoD had settled on one definition of interoperability: *"The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together" (JCS Pub 1).* The new Under Secretary for Acquisition is saying, according to Dr. Garber, that implementation is important. We know what needs to be done and it is now time that we must do it. With respect to interoperability the needed policies are basically in place. Now the structure and resources to implement these policies are needed.

- The process, however, is still evolving. Key performance parameters, DAES reporting, C4I support plans, etc. are all drivers to needed performance. The problem is that the necessary analysis and management is sometimes missing.
- The existing architectures (JTA, et al) are insufficient. There are some embryonic architectures such as for National Missile Defense, where systems architectures are needed. The C4I community has been promoting Global Information Grid but they are not there yet—more work is needed.
- System of systems implementation is inadequate. Within the systems acquisition community, systems of systems is also not there yet. There has been a focus mainly on specific systems. How to do system of systems architectures and implementation has not really yet been figured out. Affordability and performance have to be the main measures of merit.

Dr. Garber noted his Directorate of Interoperability has in its portfolio of responsibilities the management, acquisition policy, and oversight with respect to interoperability (including DAES reviews), key interoperability enablers, and several enablers. He noted there is over $36 billion in the current POM for battle management with no particular idea how it will all work together. Critical programs his office is looking at (many of which include issues which have been festering for many years) include:

- The Family of Interoperable Operational Pictures (FIOP), which is funded at $90 million in the POM but will be supported at the $500 million to $1 billion level.
- Combat Identification (CID), which is a top concern for US/Joint/Coalition interoperability. They are leading an effort combined with C3I and the Joint Staff to focus on the ground combat element of this problem—an area where the DoD has been and is the weakest.
- Time Critical Targeting/Time Critical Strike. This is a pilot program for developing a systems architecture and has been chosen as "a vehicle to develop and refine the processes for managing the acquisition and management in a systems of systems

context." The key question to be answered: What are we buying, from a joint perspective, for a capability in 2005/2010, etc for TCT/TCS? What should it be compared to what we are buying? Dr. Garber indicated the answers to these questions couldn't be even articulated today. The Services have done a lot of work but sometimes are not as willing to share their information as is desired.

Dr. Garber noted that connecting warfighting units together on the battlefield makes them necessarily interdependent. This battlefield interdependence requires in turn interdependence in engineering and acquisition activities. Thus the lack of a current unified, disciplined Joint System engineering approach among the Services has resulted in warfighting capability shortfalls. He concluded by noting that:

- Interoperability is effective Joint and combined operations. If there is no interoperability, there will not be effectiveness.
- There is a strong need to build mission area systems of systems capabilities.
- The FIOP will be key to implementing decision superiority
- Interoperability efforts must evolve in cooperation with Industry
- Commercial IT technology and processes must be harnessed and adapted for DoD use, and the processes must be coalition-friendly. Asked if this was realistic for mission critical systems, Dr. Garber indicated a strong affirmative, especially when incentivized by operational requirements and the need for a near term capability.

Dr. Garber closed by saying that he was encouraged that the situation with the Services was much better than it used to be even a relatively short time ago. However, the resources gap between what is programmed to be done and what needs to be done is a major problem.

Committee members indicated they thought Dr. Garber was doing great work and to keep at it. Dr. Garber responded that he appreciated the role of the Industry Affordability Task Force and also appreciated the opportunity to speak with them. Mr. Odeen noted there was a great opportunity within the new acquisition team in the DoD given the emphasis on affordability and interoperability that he has seen. Dr. Garber concurred but indicated it could be a challenge to capture their attention given all the other issues from personnel to the F-22 to the JSF that were all competing for attention. It was also mentioned by the Committee that it was not really possible to just go out and buy a systems of systems. Rather, one must define the system of systems, then buy the components, and finally make sure they are in fact interoperable.

Mr. Odeen and the members of the Executive Committee again expressed their appreciation to Dr. Garber for taking the time to present his briefing. Dr. Garber indicated he would like to come back soon and the Committee said that an invitation would be extended whenever he desired.

Dr. Robert L. Cattoi (Chairman of the National Research Council's Committee on Aging Avionics in Military Aircraft, Consultant) and Mr. R. Noel Longuemare (Vice Chairman of the NRC's Committee on Aging Avionics in Military Aircraft, Consultant) on The National Research Council's Aging Avionics in Military Aircraft Study: Implications for Affordability:

Dr. Cattoi outlined the need for the study, the study and assessment processes, and the study's findings and recommendations. Dr Cattoi began by very briefly summarizing the structure of the National Research Council, noting it is the principal operating agency of the National Academy of Sciences and the National Academy of Engineering. He mentioned that the NRC process requires that the members of study committees be volunteers and serve pro bono (often for long periods). He emphasized that this report is the product of the committee members, not the NRC staff.

This particular study was requested by the Assistant Secretary of the Air Force for Acquisition (SAF/AQ). It arose because Air Force fleet readiness was markedly declining (repair parts not available, diminishing manufacturing sources, obsolete parts, declining skill levels (software) in support activities) and there was a need for avionics performance upgrades (new mission requirements and air traffic control requirements). It is clear that new avionics designs will have to mitigate such issues. This implies the need for open systems/modular architectures. The membership of the study committee was a strong mix of folks with Industry experience, former DoD personnel currently in Industry, and Academia.

Mr. Cattoi noted the problem characteristics included the increased lifetimes of the Air Force's legacy aircraft. These lives had been extended well beyond their originally foreseen lives, with some airframes planned to reach to the 80-year mark, such as the KC-135 and the B-52 (many are currently at 20-40 years). The average age is 20 years and is rising year-by-year. Obviously the avionics in these aircraft suffer from the same problems as the airframes in terms of reliability, obsolete parts, and diminished sources of supply. The study committee members were told the average mission capability of USAF aircraft has declined by 10 percentage points over the last ten years. More important, avionics operation/maintenance costs are forecast to rise by over 50 percent in the next five years alone. Avionics is now the number one maintenance issue in the Air Force—it used to be engines.

Other points mentioned by Mr. Cattoi are that although the budget for avionics modernization declines for the next five years, the forecast cost of avionics modernization needs exceeds the budget by $5 billion; "color of money" issues tends to preclude effective allocation of resources to address the highest priority needs; and there are at least 25 government organizations currently addressing narrow segments of the diminishing manufacturing sources/obsolescent parts issues. These 25 groups do not talk to each other—they are doing good work within their segments but do not share best practices.

It was noted that airlines have many of the same issues. However, they evaluate return on investment for upgrades and then step up to the needed investment. They also have the Industry doing most of the "black box" maintenance—so Industry has more insight into the logistics needs/experience of the components. Admittedly, some of the military unique avionics (e.g., ECM, ECCM, etc.) has problems the airlines do not have to face. Mr. Cattoi went on to note the Committee was convinced that the problems in this field in general transcend the technical domain. Solutions will not require a technology breakthrough; rather better management and more funding can fix most of the problems.

Dr. Cattoi indicated the Aeronautical Systems Center has the lead for the Air Force in addressing this problem. They have developed rudimentary roadmaps that address from an avionics standpoint what changes and technologies should be introduced and when they should be introduced throughout the life of a system. With respect to the entire DoD, the Open Systems Joint Task Force has the charter to address these issues. They are looking at how systems can be designed to minimize the DMS/OP problems in the future. He noted that new systems, not just legacy systems, must be included in any consideration of solutions.

A Modular Open Systems Approach (MOSA) to new avionics architectures is being pursued by the Air Force and Industry. There are several advantages, including the mitigation of future aging/upgrading problems and it motivates product/module reuse for economy and schedule advantage. However, while MOSA is being given some consideration for application to the legacy fleet, it is not a primary focus. There are some inconsistencies in the MOSA world. There is disagreement as to what systems level interfaces should be open, the notion of "proprietary" versus "non-proprietary" openness, and the standards required for system of systems interoperability. In short, there are considerable inconsistencies as to what MOSA really means.

There are some current MOSA technical issues that need to be addressed. These include the building of various codes and standards (data sets, communications protocols, etc.), development and maintenance of "object" libraries (very much needed for MOSA) and qualification/requalification test strategies and tools (the current process is very costly and requires complete requalification for even relatively minor changes. In addition to the technical issues there are serious business issues to be addressed as well. For example, the level of openness needed to support continued, viable competition, the protection of suppliers' intellectual property (and it has to be valued at what it is worth, not what it costs to develop), and acquisition incentives for MOSA procurements.

Mr. Cattoi presented to, and discussed with, the members of the Executive Committee the definitions and attributes of the modular open systems approach and a modular system. He noted that within MOSA, open systems are generally also modular with several attributes, one of which is that "the choice/application of standards represents a design decision that follows open systems partitioning and functional definition of interfaces." Panel members commented (relative to the earlier JTA presentation/discussions) that this was the exact opposite of the Joint Technical Architecture. He also noted that most of benefits of MOSA could be realized through a modular approach. The F-22 and JSF are

approaching MOSA but are not there yet. It was noted that "modular" will be much easier for Industry to obtain and support than "open."

Mr. Cattoi also presented a series of the study's findings in key areas:

- An enterprise strategy is needed. There is no DoD-wide or Service-wide strategy for dealing with the aging/obsolescent avionics problem.
- The JTA has been overextended. The JTA extends beyond what is needed for inter-platform interoperability. Also, the extension of JTA into intra-platform standards is not consistent or integrated with MOSA approaches for addressing aging avionics.
- Technical expertise within the DoD's deport support as far as state-of-the-art avionics is concerned is eroding as the work force ages and retires.
- Configuration management is a problem. Modifications and upgrades of aging avionics are proceeding in such a way that aircraft (even of the same type) have different capabilities and compatibilities.
- Long acquisition and upgrade cycles require that avionics also be subject to technology refresh cycles. Some aircraft's development cycles have become so extended that the planned avionics technologies become outdated before the aircraft is even fielded. Committee members noted a prime example of this was the F-22 program. Or, an avionics upgrade becomes so extended that before all aircraft are updated, the technology is out-of-date.
- "Colors of Money" issues are a prime factor in program managers being unable to efficiently address aging avionics problems.
- In general, a comprehensive solution to the aging avionics problem could save money in the long run. However, a general solution would cost more in the short run than customized point solutions in the short run. This is particularly true for avionics upgrades in the legacy fleet. It was noted however that avionics suppliers are going ahead with these upgrades in order to stay competitive.
- Implementation of MOSA would be facilitated by having a common understanding of MOSA, including development of (1) MOSA building codes, (2) disciplined design processes, and (3) related design tools required for implementation of MOSA. To implement the MOSA strategy economically will require a test/requalification strategy coupled to the proper modeling a simulation tools. Committee members noted without this, systems will stay (as they are now) in test for far too long.
- New acquisition approaches are needed. The traditional mindset of acquiring hardware and software will have to be changed to one of acquiring functionality. The protection and value pricing of a supplier's intellectual property will be a key to success and will require workable business models. The Committee indicated this intellectual property issue is very important today and will only become more so in the future. Finally, business incentives must be defined and provided to suppliers that will motivate the use of MOSA in avionics systems design.

- It is very important to note that as the DoD/USAF rely more heavily on commercial-derived or off-the-shelf hardware and software, the expertise and intellectual property necessary to upgrade/modify/maintain these systems will increasingly have to reside in the commercial sector.

In summary, the solution to the Aging/Obsolescent Avionics problem could be enhanced by increasing the resources available. However, within currently programmed resources significant improvements could be derived by instituting an enterprise leadership/management approach by DoD and the Services, establishing productive industry/DoD interactions (such as joint working groups on MOSA, etc.), and revising acquisition practices. It was noted that all of these could be considerably enhanced via only modest additional funding.

The final report of the NRC study has been published and members were each furnished with a copy of the report.

Members of the Committee and Mr. Odeen thanked Mr. Cattoi for his presentation.

Mr. Eddie McClendon (Chairman, I-ATF Sustainment Team Chair and Manager Logistics Requirements and DoD Industry Liaison, Raytheon) on the Air Force Affordable Avionics Initiative Study (AAI):

Mr. McClendon presented an interim status report regarding the Independent Industry Study entitled: Affordable Avionics: An Industry View. He noted that Industry participants included most of the major players in the military avionics world: Anteon, ARINC, BAE Systems, Boeing, GD, Honeywell, Lockheed Martin, Raytheon, Rockwell Collins, etc.

He noted that Mission Capable rates in the Air Force have declined 10 points in the past 10 years and avionics operation/maintenance costs are forecast to increase 50 percent in the next five years. The Industry independent study is trying to alleviate this forecast. To that end, the group doing the study tried to:

- Identify potential new business concepts and practices
- Develop innovative and expeditious contracting methodologies. He noted the expeditious part was very important. In his experience it can take 3-4 years to let an affordability contract.
- Resolve obsolescence and support issues for aging aircraft avionics
- Utilize performance-based language for program documents
- Identify methodology to obtain "Total Ownership Cost " "Best Value" proposals

The Study recommends that affordability goals should be established at the onset of the acquisition process and that solicitations should emphasize affordability as a key performance parameter (KPP). It was noted that if affordability is a KPP, then trades

with other KPPs can be done. Total ownership cost metrics should be set based on USAF affordability goals and incentives defined in terms of identified contract metrics. The tough challenge will be to create Integrated Change Roadmaps with Industry's participation. This will be hard because it asks the Air Force to predict new upgrades and new technologies for the next 20-30 years. Committee members suggested that "bad-actor" LRUs should be pulled out of depots and given back to the contractor to work—letting the contractors develop and propose fixes back to the Government. They also suggested that affordability and open systems requirements be specified for new systems. The maintenance should not be automatically put into the depots—Industry should be able to effectively propose performing the maintenance themselves.

The study also recommends that alpha-based contracting be adopted, to include the development of sections L and M of the proposal. In an IPT-based environment, both Industry and the Government should work the solicitation together. The study also recommends that there be more flexibility in the use of funding types within a particular program (the "color of money" issue that has been raised earlier).

Mr. McClendon noted the Industry study strongly recommends that Industry be established as the product custodian of DoD product support for the entire life cycle of the avionics system. Responsibility, accountability, and risk should all be transferred to the contractor. This will require higher allowable profit margins. Prerequisites for this approach include weighted guidelines that are in fact recognized as guidelines, not law. Mr. McClendon noted the Navy is currently using 20-25 percent for weighted profit guidelines under a performance-based and price-based contract. As long as the overall top line cost goes down, profits are not the concern of the Government. The use of existing acquisition tools such as VECPs, performance-based logistics, and cost as an independent variable should be increased. It is important to partner with Government Depots—they are not going to go away.

The use of partnering between DoD and Industry is important throughout a weapons system's life cycle. Although this can be very sensitive (e.g., the congressional depot coalition) it must be done. Competition should be used judiciously. It is appropriate at certain levels and times, not appropriate at others. Mr. McClendon noted Industry is convinced that competition is by its basic nature disruptive of long-term partnerships. He flatly stated that you cannot have effective long-term partnerships and have continuous competition.

Mr. McClendon noted that there are some key enablers for affordability. These include modularity and commonality (and must be driven by the marketplace rather than being dictated by the Government), a performance-based business environment, Government/Industry collaborative forums (promote commonality of purpose and operate throughout the program life-cycle), and improved cash flow and earnings. The improved cash flow/earnings point is particularly important, as it helps enable the Defense Industry to undertake proactive measures/investments associated with reducing TOC and technology insertion. Other enablers to affordability include Industry (prime contractor/OEM/supplier) having configuration control as long as form, fit, function, and

interoperability are not affected. Of course, he noted that this type of configuration control brings liability issues with it.

Mr. McClendon echoed the previous presentation is discussing the need for modular/open systems. However he noted there is a dilemma. It is generally agreed that "modular" and "open" promote scalability, orderly "upgradability," module and technology reuse, and interoperability at the sub system level. These are good things. However, there is a business dilemma characterized by some disagreement with regard to the use of proprietary versus publicly supported interfaces at the hardware and software module level. There is also disagreement over the architectural level at which the acquisition is to be specified and competed (system, sub system, module component, etc.). He noted that the current NCAT MOSA Industry Steering Group (which is addressing JTA) is also addressing this issue.

In conclusion he noted the Industry Report is in draft and is pending Executive Committee Review. The report will include the previously described findings and recommendations and the underlying analysis to back them up. The report will be made available upon submission to the Aeronautical Systems Center.

The Committee members indicated they appreciated the presentation made by Mr. McClendon and looked forward to the final version of the report.

Mr. Phil Odeen (Executive Vice President, TRW, and Chairman, Multi-Association Industry Affordability Task Force) on Task Force Business and Chairman's Remarks:

Mr. Gordon brought up the "Top Ten Issues" list for the consideration of the Committee members. It was suggested by committee members if avionics is in fact the largest cost driver in DoD then it should be on the list, with a primary concern or issue to be explored being the appropriate mix of "modular" and "open."

The members of the Executive Committee discussed possible topics for the next meeting of the Executive Committee as follows:

- If not at the next meeting then at the following one, Dr. Garber should be invited back to further discuss interoperability issues, including the issues relating to interoperability between defense and Industry. One suggestion was to use Dr. Garber's charts and brief them back to him with Industry inputs (comments, additional issues to be considered, suggested solutions, areas of agreement and disagreement, etc.). It was noted that these efforts should/must evolve in cooperation with Industry and that use of commercial industry products should be encouraged and emphasized. Mr. Olson indicated he would take the lead to prepare such a briefing for the January/February Executive Committee meeting.

- Mr. Steve Olson suggested a speaker be contacted from the Defense Information Systems Agency (DISA), Ms. Alicia Jones Harwood. DISA is looking at the Defense Technical Architecture and she is working these issues.
- NCAFAM (Mr. Milbergs) offered to bring in a couple of speakers to talk about US and Global manufacturing issues in terms of what it means to Industry and the DoD. This would provide a perspective on the sharing of commercial software tools, virtual product development, data sharing, proprietary issues in this environment, etc.
- It was also suggested that Dr. Etter's replacement would be an important person to hear from as well and the new Director of Defense Research and Engineering (DDR&E) as well.
- Members of the Executive Committee also suggested that there be less issues and more time for discussion at the next meeting.

Members of the Executive Committee by a voice vote approved inviting former Major General Richard Paul, USAF, and now Director of Strategic Development for The Boeing Company, to become a member of the Executive Committee. **(Action: NCAT)**

There being no further business, the Executive Committee adjourned at 3:30 p.m.

Appendix C

Agendas for NCAT-Facilitated Conferences 1999-2001

1999 S&T Affordability Conference

"Transition of Technology to Acquisition"

2000 Naval-Industry R&D Partnership Conference

"Breaking Through the Barriers"

2000 Commercial Technology for the Warfighter Conference

"Leveraging Commercial Technology for the Warfighter"

2001 S&T Affordability Conference

"Technology Transition for Affordability"

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S&T Affordability Conference
Crystal Gateway Marriott Hotel
Arlington, VA

Theme: Transition of Technology to Acquisition

Monday, October 25, 1999 — **Affordability Awareness Training**

1200	Registration	
1300	Concurrent Training Tutorials	
	- Applied Quality Function Deployment	Facilitator: Dr. Dan Schrage, Georgia Institute of Technology
	- Teaming for Integrated Product Teams	Facilitator: Dr. Kemper Lewis, University of Buffalo
	- Making Affordability Real: Value Based Metrics for S&T	Facilitator: Greg Peisert, James Gregory & Associates
	- Statistically Designed Experiments Applied to S&T	Facilitator: Carol Ventresca, James Gregory & Associates
1700	Reception	

S&T Affordability Conference
Crystal Gateway Marriott Hotel
Arlington, VA

Theme: Transition of Technology to Acquisition

Tuesday, October 26, 1999		General Session (AM)
0800	Continental Breakfast & Registration	
0830	Welcome	Mr. John Todaro, Director, Office of Technology Transition, ODUSD (S&T)
0840	Government Keynote	Dr. Hans Mark, Director, Defense Research & Engineering
0915	Industry Keynote	Dr. Michael Griffin, Executive Vice President & Chief Technical Officer, Orbital Sciences Corporation
0945	Break	
1015	Transition Experience - Best Practices Presentations	Army: Guided Multiple Launch Rocket System (MLRS) Mr. Allan Gamble, Aviation & Missile Research, Development & Engineering Center; Mr. Gregory Pruitt, MLRS Project Office Navy: Advanced Enclosed Mast/Sensor System Dr. Gene Camponeschi, Naval Surface Warfare Center Air Force: Laser Eye Protection Ms. Pamela Schaefer, Air Force Research Laboratory; Lt Eric Buskness, Brooks Air Force Base
1200	Lunch - Speaker: "S&T and Y2K"	Mr. Thomas Browne, Executive Director, Air Transport Association of America, Year 2000 Program

S&T Affordability Conference
Crystal Gateway Marriott Hotel
Arlington, VA

Theme: Transition of Technology to Acquisition

Tuesday, October 26, 1999		General Session (PM)
1330	Service Transition Workshops	Dr. Mike Andrews, Deputy Assistant Secretary of the Army (Research & Technology) Dr. Don Daniel, Deputy Assistant Secretary of the Air Force (Science, Technology, and Engineering) Mr. Dave Rossi, Director of Industrial Programs, Office of Naval Research
1430	GAO Best Practices Report - Technology Management	Mr. Mike Sullivan & Mr. Paul Francis, General Accounting Office
1500	Break	
1530	Service Acquisition Executive Panel - Transition Perspective - Audience Q&A	Moderator: Mr. Joseph Eash, Deputy Under Secretary of Defense (Advanced Systems & Concepts) Panelists: Mr. Paul J. Hoeper, Assistant Secretary of the Army (Acquisition, Logistics & Technology) Dr. Lee Buchanan, Assistant Secretary of the Navy (Research, Development, & Acquisition) Dr. Lawrence Delaney, Assistant Secretary of the Air Force (Acquisition)
1645	Summary / Adjourn	Mr. John Todaro, Director, Office of Technology Transition, ODUSD (S&T)

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Naval-Industry R&D Partnership Conference
August 9-11, 2000

"Breaking Through the Barriers"

August 8, 2000

4:00p-8:00p **Conference Registration**

August 9, 2000 (Morning)

6:45a-8:00a **Breakfast Buffet**

7:00a-5:00p **Conference Registration, Displays Open**

8:15a **Conference Call to Order**

8:30a-8:45a **Welcome** – *RADM Jay M. Cohen, Chief of Naval Research*
Conference goals & objectives; The Grand Challenge

8:45a-9:30a **Keynote Speech** – *The Honorable (Dr.) H. Lee Buchanan, Assistant Secretary of the Navy (Research, Development and Acquisition)*
The acquisition and technology environment

9:45a-11:15a **Panel on Information Technologies**
Moderator, The Honorable David McCurdy, President, Electronic Industries Alliance
Dr. Frank Perry, Technology Director, Space and Naval Warfare Systems Command
Mr. Steve Ehrler, Deputy Program Executive Officer-Information Technology, Office of the Assistant Secretary of the Navy (Research, Development and Acquisition)
Mr. John W. McNair, Jr., Director, Program/Budget Coordinating Division, Office of the Assistant Secretary of the Navy (Financial Management & Comptroller)
Mr. John Leahy, III, Chief of Staff, Sun Microsystems Federal, Inc.
Jude E. Franklin, Ph.D., Vice President and CTO, Litton PRC
Mr. Mark A. Fried, Corporate Vice President and General Manager, Integrated Systems Division, Motorola Systems Solutions Group, Motorola Space and Electronics

11:30a-12:45p **Luncheon** -- *Mr. Frederic J-Y Quan, Manager of Technology Acquisition, Corning Incorporated*

August 9 (Afternoon)

1:00p-2:30p **Panel on Aerospace Technologies**

Moderator, The Honorable John W. Douglass, President and CEO, Aerospace Industries Association
RADM Jeffery A. Cook, Vice Commander, Naval Air Systems Command
RADM (Sel) Steven Enewold, Operations Officer, Program Executive Office for Tactical Programs
Mr. John W. McNair, Jr., Director, Program/Budget Coordinating Division, Office of the Assistant Secretary of the Navy (Financial Management & Comptroller)
Mr. Charles T. Burbage, Executive Vice President for Customer Requirements, Lockheed Martin Aeronautics Company
Mr. Robert W. Klein, Vice President Engineering and Technology, Northrup Grumman
Mr. Herm M. Reininga, Vice President, Operations, Rockwell Collins
Mr. James M. Sinnett, Vice President Strategic Development, The Boeing Company

3:00p-5:15p **Breakout Sessions**

Opportunity for conference attendees to focus on issues related to the conference.

Track A: Attracting Commercial Partners
Session A-1-1 - Connecting with Regional/State Programs
Session A-1-2 - Articulating Defense Needs/Understanding Industry Capabilities
Session A-1-3 - Venture Strategy: Understanding Technology Transition Viability

Track B: Creating Incentives/Bulldozing Disincentives
Session B-1-4 - Intellectual Property
Session B-1-5 - Value Driven Procurement
Session B-1-6 - Export Controls

Track C: Enhancing the Technology Insertion Process
Session C-1-7 - Lean Sustainment
Session C-1-8 - DoD 5000 Implementation in the Department of the Navy
Session C-1-9 - New Strategies for Technology Insertion

Track D: Meet the Navy's Program Managers and Prime Suppliers
Session: D-1-10 - Naval Air Systems Command
- Aviation Training Systems and Aircrew Systems/Life Support Equipment
- Air Assault and Special Mission Programs (including AH-1Z Cobra Upgrade)
- Tactical Aircraft Systems (including F-18E/F, EA-6B, etc.)

5:15p-7:15p **Welcome Reception, Displays Open**

August 10, 2000 (Morning)

6:45a-8:00a **Breakfast Buffet**

7:00a-5:00p **Conference Registration, Displays Open**

8:15a-8:30a **Opening Remarks**

Mr. Thomas Kowalczyk, Product Innovation Division, Office of Naval Research

8:30a-10:00a **Panel on Expeditionary Systems Technologies**

Moderator, MGen Ronald L. Beckwith, USMC (Ret), National Defense Industrial Association
MGen Michael A. Hough, USMC, Director, Joint Strike Fighter Program
Mr. John D. Robusto, Deputy Commander, Science & Technology, Marine Corps Systems Command
Mr. Harry E. Schulte, Acquisition Executive and Senior Procurement Executive, U.S. Special Operations Command
Mr. Edward R. Cochrane, Jr., Director, Civilian Resources and Business Affairs Division, Office of the Assistant Secretary of the Navy (Financial Management & Comptroller)
Mr. John R. Bramer, Director, Engineering Systems Division, SRI Int'l
Leonard S. Haynes, Ph.D., President, Intelligent Automation, Inc.
Mr. Daniel L. Smith, Vice President & General Manager, Raytheon Naval and Maritime Integrated Systems Company
Mr. John W. Wosina, Vice President Amphibious Systems, General Dynamics Land Systems

10:30a-12:00p **Panel on Shipbuilding Technologies**

Moderator, Ms. Cynthia L. Brown, President, American Shipbuilding Association
VADM George P. Nanos, Commander, Naval Sea Systems Command
RADM Charles B. Young, Director of Undersea Technology, NAVSEA
Mr. Gregg D. Hagedorn, Executive Director for Integrated Warfare Systems, NAVSEA
Mr. Raymond S. Lisiewski, Deputy PEO, Surface Strike
Ms. Gaye L. Evans, Director, Investment & Development Division, Office of Budget & Financial Management, Office of the Assistant Secretary of the Navy (Financial Management & Comptroller)
Dr. Lawrence J. Cavaiola, President, Litton Ship Systems Full Service Center and Vice President, Strategic and Business Development, Litton Ship Systems
Mr. Millard S. Firebaugh, Vice President, Innovation and Chief Engineer, Electric Boat Corporation
Mr. Robert L. Gunter, Jr., Vice President-Engineering, Newport News Shipbuilding

August 10 (Afternoon)

12:15p-1:30p **Luncheon**
The Honorable Jerry MacArthur Hultin, Under Secretary of the Navy

2:00p-5:00p **Breakout Sessions**

Opportunity for conference attendees to focus on issues related to the conference

Track A: Attracting Commercial Partners
Session A-2-2 - Partnering I
Session A-2-2 - Globalization and National Security
Session A-2-3 - E-Business/Information Exchange
Session A-2-4 - Technology Transfer in the Computer Software Sector

Track B: Creating Incentives/Bulldozing Disincentives
Session B-2-5 - Incentivizing the Government
Session B-2-6 - Incentivizing Industry
Session B-2-7 - Partnering II: The Military and Civilian Sector

Track C: Enhancing the Technology Insertion Process
Session C-2-8 - Disruptive Technologies
Session C-2-9 - Advancing the Pool of Available Technologies
Session C-2-10 - New Methods/Practices/Tools for the Management of Technology

Track D: Meet the Navy's Program Managers and Prime Suppliers
Session D-2-11 - Naval Sea Systems Command - Program Executive Office Theater Surface Combatants
Session D-2-12 - Naval Sea Systems Command - Program Executive Office Submarine
Session D-2-13 - Naval Sea Systems Command - Program Executive Office Surface Strike - Presentations on DD-21 Program
Session D-2-14 - Naval Sea Systems Command - Program Executive Office Aircraft Carriers - Presentations on Current Carrier Programs
Session D-2-15 - Marine Corps Systems Command - Presentations on USMC Acquisition Programs, SBIR and International Programs
Session D-2-16 - Marine Corps Systems Command - Meet Navy and Marine Corps Program Managers and Prime Suppliers

August 11, 2000 (Morning)

6:45a-8:00a **Continental Breakfast**

7:00a-11:00p **Displays Open**

8:15a-8:30a **Opening Remarks**
Mr. Thomas Kowalczyk, Product Innovation Division, ONR

8:30a-10:00a **Panel on Industry Vision of Future Technology**

Moderator, Mr. Charles F. Larson, President, Industrial Research Institute
Dr. James J. DeCorpo, Department of the Navy Chief Technology Officer
The Honorable David R. Oliver, Principal Deputy Under Secretary of Defense for Acquisition, Technology, and Logistics
Mr. Matthew K. Haggerty, President and CEO, Product Genesis
Professor Maurice F. Holmes, Co-Director, Center for Innovation in Product Development, MIT
Dr. Larry J. Howell, Executive Director Science, General Motors
Mr. David O. Swain, Sr. Vice President of Engineering and Technology, The Boeing Company, and President, Phantom Works
Dr. Valery M. Tsourikov, CEO Invention Machine Corporation

(Break)

10:30a-12:00p **Executive Review Panel**

Presentation of Panel and selected Breakout Session results and recommendations to a high level group of distinguished defense and industry association executives

Dr. James J. DeCorpo, Department of the Navy Chief Technology Officer
VADM George P. Nanos, Commander, Naval Sea Systems Command
Mr. Charles P. Nemfakos, Senior Civilian Official (Financial Management & Comptroller)
Mr. Irving N. Blickstein, Assistant Deputy Chief of Naval Operations (Resources, Warfare Requirements & Assessments)
Ms. Eileen Roberson, Acquisition Reform Executive, Office of the Assistant Secretary of the Navy (Research, Development, & Acquisition)
Mr. William J. Schaefer, Jr., Deputy Assistant Secretary (Planning, Programming & Resources), Office of the Assistant Secretary of the Navy (Research, Development & Acquisition)
RADM Jay M. Cohen, Chief of Naval Research
RADM Gwilym H. Jenkins, Jr., Deputy for Acquisition Business Management, Office of the Assistant Secretary of the Navy (Research, Development, & Acquisition)
RADM (Sel) Steven Enewold, Operations Officer, Program Executive Office for Tactical Programs
Mr. Michael J. O'Driscoll, Deputy Chief Engineer, Office of the Assistant Secretary of the Navy (Research, Development, & Acquisition)
Mr. David M. Wennergren, Department of the Navy Deputy Chief Information Officer for eBusiness and Information Assurance
MGen Ronald L. Beckwith, USMC (Ret), National Defense Industrial Association
Ms. Cynthia L. Brown, President, American Shipbuilding Association

10:30a-12:00p **Executive Review Panel (Continued)**

The Honorable John W. Douglass, President and CEO, Aerospace Industries Association

Mr. Charles F. Larson, President, Industrial Research Institute

Jude E. Franklin, Ph.D., Chairman, Systems Standards & Technology Council, Electronic Industries Alliance, and Vice President, Chief Technology Officer, Litton PRC

LTG Larry F. Skibbie, USA (Ret), President, National Defense Industrial Association

Mr. Roger Majak, Assistant Secretary for Export Administration, U. S. Department of Commerce

12:00p-12:15p **Closing Remarks and Adjourn Conference**

The Honorable (Dr.) H. Lee Buchanan, Assistant Secretary of the Navy (Research, Development and Acquisition)

COMMERCIAL TECHNOLOGY FOR THE WARFIGHTER

November 8-9, 2000

The McLean Hilton Hotel, Tyson's Corner, Virginia

"Leveraging Commercial R&D for Improved Weapon Systems"

Tuesday - November 7, 2000

5:00 - 8:00	*Conference Registration*

Wednesday - November 8, 2000

7:00 - 4:00	*Conference Registration*
7:30 - 8:55	*Continental Breakfast in Exhibit Room/Exhibits Open*
8:55 - 9:00	**Conference Call to Order** -- *Mr. John B. Todaro, Director, Office of Technology Transition*
9:00 - 9:15	**Welcome and Conference Overview** *Mr. John B. Todaro, Director, Office of Technology Transition*
9:15 - 9:45	**Government Keynote** *Dr. Delores M. Etter, Deputy Under Secretary of Defense (Science & Technology)*
9:45 - 10:00	**Award Presentation** *The first annual DoD DU S&T Achievement award will be presented by Dr. Etter*
10:00 - 10:45	*Break in Exhibit Room/Exhibits Open*
10:45 - 11:30	**Industry Keynote** *Dr. Jude E. Franklin, Vice President, Chief Technology Officer, Litton PRC*
11:30 - 12:00	**Acquisition Reform** *Mr. Richard K. Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition)*
12:00 - 1:30	**Luncheon/Exhibits Open** -- *Mr. Philip A. Odeen, Executive Vice President and General Manager, Washington Operations, TRW, Inc.*

Wednesday - November 8, 2000 (Continued)

1:30 - 3:00 **DU S&T Best Practices Panel**
Mr. Dan Petonito, Associate Director, Office of Technology Transition (Moderator)
Mr. Ronald C. Hodge, GE Corporate Research and Development Center
Dr. Lourdes Maurice, Deputy for Dual Use Science and Technology, Office of the Deputy Assistant Secretary of the Air Force (Science, Technology and Engineering)
Mr. Mohammad Shihada, AppTek Corporation
Mr. Paul Skalny, National Automotive Center
Ms. Gail Walters, CPU Technology Incorporated

3:00 - 3:30 ***Break in Exhibit Room/Exhibits Open***

3:30 - 5:00 **COSSI Best Practices Panel**
Mr. Richard A. Mirsky, Associate Director, Office of Technology Transition (Moderator)
Mr. Mark Behenna, JAYCOR Inc., "Data Distribution Kits for Command Centers"
Mr. Martin Bare, Naval Air Systems Command, "Commercial Technology for the Naval Aviation Warfighter"
Mr. Scott Lerman, US Army, "Guardrail Mainframe System Computer Upgrade"

5:00 - 7:00 ***Reception w/ heavy hors d'oeuvre: In exhibit room/Exhibits Open***

Thursday - November 9, 2000

7:30 - 8:30 ***Breakfast in Exhibit Room/Exhibits Open***

8:30 - 8:35 **Conference Call to Order and Overview**
Mr. John B. Todaro, Director, Office of Technology Transition

8:35 - 9:00 **Special Topic Briefing: Other Transactions Authority for Production**
Mr. John H. Ablard, Senior Research Fellow, Logistics Management Institute

9:00 - 10:30 **Industry Perspectives Panel**
The Honorable John W. Douglass, President and CEO, The Aerospace Industries Association of America (Moderator)
Mr. Herm M. Reininga, Vice President, Operations, Rockwell Collins
Mr. James M. Sinnett, Vice President Strategic Development, The Boeing Company
Mr. George E. (Chip) Pickett, Vice President, Marketing & Business Planning, Northrop Grumman Electronics Sensors and Systems Sector

10:30 - 11:00 ***Break in Exhibit Area/Exhibits Open***

11:00 - 12:15	**Congressional Perspectives Panel** *Mr. Jon L. Etherton, Assistant Vice President for Legislative Affairs, Aerospace Industries Association of America (Moderator)* *Ms. Pamela L. Farrell, Professional Staff Member, Emerging Threats and Capabilities Subcommittee, Senate Armed Services Committee* *Mr. Jean D. Reed, Professional Staff Member, Military Research and Development Subcommittee, House Armed Services Committee*
12:15 - 12:30	**Closing Remarks** *Mr. John B. Todaro, Director, Director, Office of Technology Transition*

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4th S&T AFFORDABILITY CONFERENCE

March 12 - 13, 2001

The Fairview Park Marriott, Falls Church, Virginia

"Technology Transition for Affordability

Monday - March 12, 2001- General Session

11:00 - 6:00 **Conference Registration**

1:00 **Welcome / Comments**
Mr. Dan Cundiff, Associate Director, Office of Technology Transition, Deputy Under Secretary of Defense (Science and Technology)

1:10 **Army S&T Affordability Best Practices:** Guided Multiple Launch Rocket System Advanced Technology Demonstration
Mr. Allan E. Gamble, MLRS Program Manager, Advanced Systems Directorate, US Army Aviation and Missile Command Research & Engineering Center
Mr. Robert W. Derry, Program Manger, Sensor & Guidance Products, Honeywell
Mr. Mike Allen, Senior Principle Staff Engineer, Atlantic Research Corporation

2:25 **Break** -- *Light Refreshments*

2:40 **Navy S&T Affordability Best Practices:** Affordable Common Countermeasures Program
Dr. Teresa A. McMullen, Program Manager, Office of Naval Research
Mr. Martin Buffman, Supervisory Electronics Engineer, NUWC Newport
Mr. George E. Hendricks, Director New Business Development, BAE SYSTEMS Ocean Systems

Mr. David K. Howard, Program Manager, PMS415 Undersea Defensive Warfare Systems

Mr. Richard J. Kielmeyer, General Manager, BAE SYSTEMS, Ocean Systems

Mr. Roger Larson, Engineering and Program Manager, BAE SYSTEMS

3:55 **Break** -- *Light Refreshments*

4:10 **Air Force S&T Affordability Best Practices:** Integrated Panoramic Night Vision Goggle (I-PNVG) Program

Mr. Jeffrey L. Craig, Program Manager, Air Force Research Laboratory

Mr. Randall W. Brown, Air Force Research Laboratory

Captain Samuel J. Gardner, USAF, Air Force Research Laboratory

Mr. Eric Littleton, Insight Technology, Inc.

Mr. Joseph A. Paul, Aeronautical Systems Center

Master Sergeant Mike Sedillo, USAF, Air Force Research Laboratory

5:25 **Session Closing**

5:30 - 7:00 **Reception w/ Heavy Hors d'oeuvre (in Salon B)** -- *Exhibits Open*

Tuesday - March 13, 2001 - General Session

7:00 - 11:00 **Conference Registration**

7:30 - 8:30 **Continental Breakfast in Salon B** -- *Exhibits Open*

8:55 **Conference Call to Order**

Mr. Dan Cundiff, Associate Director, Office of Technology Transition, Deputy Under Secretary of Defense (Science and Technology)

9:00 **Welcome / Opening Comments**

Mr. Allen W. Beckett, Acting Deputy Under Secretary of Defense (Logistics & Materiel Readiness)

9:15 **Government Keynote:** A Customer's Perspective

Colonel Thomas P. Kelly, USA, Project Manager, Night Vision, Reconnaissance and Target Acquisition, Program Executive Office, Intelligence, Electronic Warfare and Sensors

9:45 **Industry Keynote:** An Industry View of Affordability and Transition
The Honorable John W. Douglass, President and CEO, The Aerospace Industries Association of America, Inc.

10:15 **Break** -- *Light Refreshments, Exhibits Open*

10:45 **Academia Keynote:**
Dr. Dimitri Mavris, Associate Professor & Director, Aerospace Systems Design Laboratory, Georgia Institute of Technology

11:15 **S&T Role in Evolutionary Defense Acquisition**
Mr. Skip Hawthorne, Senior Systems Acquisition Analyst, Office of the Deputy Under Secretary of Defense for Acquisition Reform

11:45 **Luncheon & Award Presentation** -- *Exhibits Open*
S&T Transition for Affordability Achievement Award -- Army's Guided Multiple Launch Rocket System Advanced Technology Demonstration

1:00 **Commercial Industry Transition Processes Panel**
Moderator: *Dr. Michael F. McGrath, Vice President for Government Business, Sarnoff Laboratories, Inc.*
Panelists:
Mr. Philip G. Walker, Director, Government Markets, Eastman Kodak Co.
Mr. Edward J. Zellner, Vehicle Chief Engineer -- Luxury Cars, General Motors

2:00 **R&D View of Affordability Panel**
Moderator: *Dr. Lance A. Davis, Executive Officer, National Academy of Engineering*
Panelists:
Mr. Walter P. Wynbelt, Executive Director, Development Business Group, U.S. Army Tank-Automotive and Armament Command Research, Development, and Engineering Center
RDML Charles H. (Bert) Johnston, Jr., USN, Chair, Navy Laboratory/Center Coordinating Group and Commander, Naval Air Warfare Center Weapons Division
Dr. Charles E. Browning, Director, Materials and Manufacturing Directorate, Air Force Research Laboratory

3:00 **Break** -- *Light Refreshments, Exhibits Open*

3:30 **S&T Executives' Panel**

Moderator: *Dr. Delores M. Etter, Acting Director, Defense Research & Engineering*

Panelists:

Dr. A. Michael Andrews, II, Deputy Assistant Secretary of the Army (Research and Technology)

RADM Jay M. Cohen, USN, Chief of Naval Research

Dr. Hendrick W. Ruck, Acting Associate Deputy Assistant Secretary of the Air Force (Science, Technology, and Engineering)

Dr. E. Allen Adler, Deputy Director, Tactical Technology Office, Defense Advanced Research Projects Agency

5:00 **Closing Remarks and Adjourn Conference**

Dr. Delores M. Etter, Acting Director, Defense Research & Engineering

Appendix D

Agendas and Related Materials for PEO/SYSCOM Commanders' Conferences Supported by NCAT

Spring 1999 PEO/SYSCOM Commanders' Workshop

"Product Support and the Commercial Business Environment"

Fall 1999 PEO/SYSCOM Commanders' Conference

"Going Commercial—Building on our Achievements"

SPRING 2000 PEO/SYSCOM Commanders' Workshop

"Integrating Across the Life Cycle—Putting the Pieces Together"

Fall 2000 PEO/SYSCOM Commanders' Conference

"Continuous Improvement and Innovation—Everyone's Responsibility"

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PEO/SYSCOM COMMANDERS' WORKSHOP

"Product Support and the Commercial Business Environment"

Tuesday Morning, April 13, 1999: (DSMC, Scott Hall)

Times	Topic
0830-0835	**Conference Opening** – LtGen Thomas Ferguson, USAF (Ret)
0835-0840	**Welcome** – RADM Leonard Vincent, Commandant, Defense Systems Management College
0840-0845	**Introduction of the Honorable Jacques Gansler** – LtGen Thomas Ferguson
0845-0945	**Keynote** – Honorable Jacques Gansler, Under Secretary of Defense (Acquisition and Technology)
0945-1015	**Break**
1015-1145	**Summary of 912c Results on Product Support and the Commercial Business Environment** **Moderator:** Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform) **Panel:** Mr. Louis Kratz, Director, Logistics Reinvention Mr. William Mounts, Director, International & Commercial Systems Acquisition Mr. Robert Leach, Office of the Director, Systems Acquisition
1145-1200	**Buses to Community Club**
1200-1330	**Lunch, Speaker:** "Using Open Systems to Enhance Product Support Reengineering" - Mr. James Sinnett, Vice President, Strategic Development, The Boeing Company
1330-1345	**Buses to DSMC, Scott Hall**

Tuesday Afternoon, April 13, 1999:

Times	Topic
1345-1715	**Participants attend their assigned session**

Concurrent Sessions
Work Breakout Session: **Transitioning to Competitively Sourced Product Support Strategies** **Location: TBD** **Co-Chairs:** Mr. Jerry Cothran, Chief Acquisition Logistics HQ USAF Mr. William Kenny, Executive Director, Procurement Management, DLA
Work Breakout Session: **Integrated Logistics Chains** **Location: TBD** **Chair:** Mr. Randy Fowler, Office of the Deputy Under Secretary of Defense (Logistics)
Work Breakout Session: **Maintaining and Expanding Product Support Competitive Base** **Location: TBD** **Co-Chairs:** Mr. William Mounts, Director, International & Commercial Systems Acquisition Ms. LeAntha Sumpter, Office of the Deputy Under Secretary of Defense for Acquisition Reform
Work Breakout Session: **Implementing Win-Win Public/Private Product Support Relationships** **Location: TBD** **Co-Chairs:** Mr. William Mackinson, Navy Acquisition Center of Excellence and Office of the Director for Supportability, Maintenance, and Modernization Army TBD
Work Breakout Session: **PM Oversight of Life Cycle Cost Support** **Location: TBD** **Co-Chairs:** Col "Scoop" Cooper, USAF, Special Assistant for Total Ownership Cost Mr. Robert Leach, Office of the Director, Systems Acquisition
Work Breakout Session: **Improving Reliability, Maintainability, and Sustainability Through Continuous Technology Refreshment (CTR)** **Location: TBD** **Chair: TBD**

1725-1745	**Adjourn and Travel to Officers' Club**

Tuesday Evening, April 13, 1999: (Officers' Club)

ATTENDANCE @ EVENING SESSION IS STRONGLY ENCOURAGED

Times	Topic
1745-1845	**No-Host Mixer with Heavy Hors D'oeuvres**
1745-1845	**Exhibits –TBD**
1845-2015	**Town Meeting - "Acquisition-Logistics Integration"** **Host:** Mr. Roger Kallock, Deputy Under Secretary of Defense (Logistics)

Wednesday, April 14, 1999: (DSMC, Scott Hall)

Times	Topic
0815-0820	**Introduction** – LtGen Thomas Ferguson, USAF (Ret)
0820-0950	**Concurrent Sessions Continue**
0950-1015	**Break**
1015-1145	**Industry and Government Views of Priced Based Acquisition**
	Moderator: Mr. William Stussie, Deputy Assistant Secretary of the Navy (Air Programs) **Panel:** MajGen Timothy Malishenko, Commander, Defense Contract Management Command Mr. R. Terry Marlow, Vice President Government Division, Aerospace Industry Association of America, Inc. Ms. Karen Wilson, Vice President Government Operations, Allied Signal
1145-1200	**Travel to Community Club**
1200-1315	**Lunch, Speaker: TBD**
1315-1330	**Break**

REMAIN @ COMMUNITY CLUB FOR AFTERNOON SESSION

1330-1530	**Breakout Group Report Out and Senior Leadership Panel**
	Panel: Honorable Jacques Gansler, Under Secretary of Defense (Acquisition and Technology) Honorable Page Hoeper, Assistant Secretary of the Army (Research, Development & Acquisition) Honorable Lee Buchanan, Assistant Secretary of the Navy (Research, Development & Acquisition) Mrs. Darlene Druyun, Principal Deputy (Acquisition and Management), Office of the Assistant Secretary of the Air Force (Acquisition) LTG John McDuffie, Director for Logistics (J-4) LTG John Coburn, Deputy Chief of Staff for Logistics (Army) VADM James Amerault, Deputy Chief of Naval Operations (Logistics) (OPNAV N4) LtGen John Handy, Deputy Chief of Staff Air Force (Logistics) MajGen Jeffrey Higginbotham, Deputy Chief of Staff for Installations & Logistics (USMC)
1530-1540	**Workshop Summation and Action Items** – Honorable Jacques Gansler
1540	**Adjourn**

PEO/SYSCOM COMMANDERS' CONFERENCE AGENDA

"Going Commercial—Building on our Achievements"

Tuesday Morning, October 19, 1999 (DSMC, Essayons Auditorium)

Times	Topic
0815-0820	**Conference Opening** – LtGen Thomas Ferguson, USAF (Ret)
0820-0825	**Welcome** – Mr. Rich Reed, Deputy Commandant, Defense Systems Management College
0825-0830	**Introduction of the Honorable Jacques Gansler** – LtGen Thomas Ferguson
0830-0930	**Keynote** – Honorable Jacques Gansler, Under Secretary of Defense (Acquisition and Technology)
0930-0955	**Summary of Activities Since Last Conference** – Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform)
0955-1025	**Break**
1025-1110	**Interoperability Panel** **Moderator:** Dr. V. Garber, Director of Interoperability **Panel:** RADM Martin Mayer, Director for Strategy, Requirements and Integration, Joint Forces Command RADM Robert Nutwell, Deputy Assistant Secretary of Defense for Command, Control, Communications and Intelligence, Surveillance and Reconnaissance and Space Systems
1110-1210	**The Road Ahead—Accelerating the Transformation of of DoD Acquisition and Logistics Processes and Practices** – Mr. Richard Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition), and Mr. William Mounts, Director of International and Commercial Systems Acquisition
1210-1225	**Buses to Officer's Club**
1225-1340	**Lunch, Speaker:** "Expectations for the Future," Honorable David Oliver, Principal Deputy Under Secretary of Defense (Acquisition and Technology)
1340-1355	**Buses to DSMC, Scott Hall**

Tuesday Afternoon, October 19, 1999

Times	Track 1 **Moderator: Mr. Richard Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition)** **SOSA Recreation Room**	Track 2 **Moderator: Mr. Skip Hawthorne, Office of the Deputy Under Secretary of Defense (Acquisition Reform)** **Howell Auditorium**	Track 3 **Moderator: Dr. Spiros Pallas, Principal Deputy to the Director, Strategic and Tactical Systems** **Essayons Auditorium**
1355 to 1525	**PBA: Point/Counterpoint** **Moderator:** Mr. Richard Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition) **Participants:** Ms. Meredith Murphy, Director of Business Affairs and Acquisition Policy, The Boeing Company; Mr. Herm Reininga, Vice President for Operations, Rockwell Collins; Mr. William Stussie, Deputy Assistant Secretary of the Navy (Air Programs); Mr. Larry Uhlfelder, Assistant Director, Policy & Plans, Defense Contract Audit Agency	**COTS Based Systems—Keys to Success,** Dr. Carol Sledge, Software Engineering Institute (SEI)	**R-TOC in DoD—An Overview** **Moderator:** Dr. Spiros Pallas, Principal Deputy to the Director, Strategic and Tactical Systems **Participants:** Mr. Keith Charles, Deputy Assistant Secretary of the Army for Plans, Programs and Policy; Ms. Eileen Roberson, Navy Acquisition Reform Executive; Mr. Blaise Durante, Deputy Assistant Secretary of the Air Force for Management Policy and Program Integration
1525-1555 Break			
1555 to 1640	**Empowering the Workforce with Balanced Scorecards,** Ms. Gia Harrigan, Program Manager, Naval Undersea Warfare Center; Ms. Beth Miller, Head, Strategy Development, Naval Undersea Warfare Center	**Strategic Partnerships with PEOs in Test Investments,** Mr. John Gehrig, Deputy Director for Resources and Ranges (Operational Test and Evaluation)	**Industry Perspective: DoD R-TOC Through Sustainment Best Practices** Mr. Bob Dickie, Parker Aerospace; Mr. Noel Longuemare, Consultant; Mr. Eddie McClendon, Raytheon; Mr. Ted Pertowski, GEC Marconi
1645 to 1730	**The 5000 Rewrite and a new Acquisition Model to Reduce Cycle Time While Improving Performance,** Dr. Joseph Ferrara, Deputy Director, Acquisition Systems Management	**Going Commercial in DLA,** COL Walter Kozak, Executive Director, Program Management Directorate, Defense Logistics Agency	**Service Activities:** **Army Pilot Program's Bill of Rights,** COL James Stevens, Deputy Director Army Total Ownership Cost Reduction Office **The Navy's Cost Reduction and Effectiveness Improvement Council,** CAPT Carl Froehlich, Office of Naval Resources, Warfare Requirements and Assessments

Tuesday Evening, October 19, 1999 (Officers' Club)

ATTENDANCE @ EVENING SESSION IS STRONGLY ENCOURAGED

Times	Topic
1730-1745	**Travel to Officers' Club**
1730-1845	**No-Host Mixer with Heavy Hors D'oeuvres**
1730-1845	**Exhibits**

American Competitiveness Institute; POC: Bob Kuhle (610) 362-1200 ext. 216
The Boeing Company; POC: Renee Ayars (314) 234-8125
Commercial Operating and Support Savings Initiative;
Lockheed Martin Corporation; POC: Larry Falcone (301) 897-6825
Marconi North America, Inc; POC: Paula Sandin (301) 738-4653
Raytheon Systems Company; POC: Ron Newman (757) 852-2008
Simulation Based Acquisition; POC: Robert Brainard (703) 414-0191
Software Engineering Institute; POC: Julie O'Rorke (412) 268-7080

1845-2015 **Evening Panel – "Going Commercial on the Battlefield—Implications on Theater Operations"**

Moderator: Honorable David Oliver, Principal Deputy Under Secretary of Defense (Acquisition and Technology)

Panel:
Col John Blecher, Chief Contracting Division, U.S. Air Force Air Combat Command
Mr. Thomas Edwards, Deputy to the Commander, U.S. Army Combined Arms Support Command
MG Charles Fiala USA (Ret), Vice President and Chief Operating Officer, Brown and Root Services
Mr. Lee Frame, Deputy Director Operational Test and Evaluation (Conventional Systems)
VADM William Hancock USN (Ret)
MG Geoffrey Lambert, Director of the Center for Operations, Plans and Policy, Special Operations Command
Ms. Kathryn Szymanski, Chief Counsel, U.S. Army Communications-Electronics Command

Wednesday Morning, October 20, 1999 (DSMC, Scott Hall)

Times	Topic
0745-0815	**Logistics Initiatives for Special Operations Command** – Mr. Harry Schulte, SOCOM Acquisition Executive
0815-0915	**Perspectives on "what's working," "what's not working," and "how to pick up the pace"** **Moderator:** Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform) **Panel:** **Program Mangers' Perspectives** – CAPT Paul Sullivan, Program Manager, Virginia Class Submarine Program Office **Program Executive Officers' Perspectives** – MG John Michitsch, PEO, Ground Combat and Support Systems **System Commanders' Perspectives** – VADM "Pete" Nanos, Commander Naval Sea Systems Command **Logistics' Perspectives** – Mr. Louis Kratz, Director Logistics Systems Reengineering **Industries' Perspectives** – Mr. Pete DeMayo, Vice President for Contract Policy, Lockheed Martin Inc. **Comptrollers' Perspectives** – Mr. John Roth, Deputy Director for Investment
0915-0945	**Break**
0945-1145	**Panel Continues**
1145-1215	**Acquisition Reform and the Small Business Program—A Partnership** – Mr. Robert Neal, Director, Office of Small and Disadvantaged Business Utilization
1215-1230	**Travel to Officers' Club**
1230-1400	**Lunch, Speaker:** – The Honorable Daniel Goldin, Administrator, National Aeronautics and Space Administration

Wednesday Afternoon, October 20, 1999 (Officers' Club)

Times	Topic
1400-1530	**Wrap-Up Panel** **Moderator:** Honorable Jacques Gansler, Under Secretary of Defense (Acquisition and Technology) **Panel:** Honorable David Oliver, Principal Deputy Under Secretary of Defense (Acquisition and Technology) Honorable Page Hoeper, Assistant Secretary of the Army (Acquisition, Logistics and Technology) Honorable Lee Buchanan, Assistant Secretary of the Navy (Research, Development and Acquisition) Honorable Lawrence Delaney, Assistant Secretary of the Air Force (Acquisition)
1530	**Closing**

Meeting Notes

October 1999
PEO/SYSCOM Commanders' Conference
Industry Working Group

On September 1, 1999 a meeting was held at the offices of the National Center for Advanced Technologies (NCAT), 1250 Eye Street, NW, Washington, D.C. in order to kickoff the process of developing a consolidated industry input for Pete DeMayo's presentation at the PEO/SYSCOM Commanders' Conference on October 20, 1999. Attendees included:

- Warren Balish, Aerospace Industries Association
- Larry Blair, Northrup Grumman
- Jon Etherton, Aerospace Industries Association
- Larry Falcone, Lockheed Martin
- Nick Kuzemka, Lockheed Martin
- Bruce Leinster, IBM
- Frank Losey, American Shipbuilding Association
- Joel Marsh, Pratt & Whitney/United Technologies Corporation
- Meredith Murphy, The Boeing Company
- Bill Quinn, NCAT
- Stan Siegel, NCAT
- Pat Sullivan, Aerospace Industries Association

The meeting began with a welcome from Stan Siegel, President of NCAT. To provide a context for the group's task, Nick Kuzemka described the background and history of the PEO/SYSCOM Conferences (including the evolution from 5 to 100 industry seats). Bill Quinn then described the format of this year's conference, with emphasis on the "Perspectives" session at which Mr. Pete DeMayo would be speaking. The group offered several suggestions as follows:

- The five speakers on this panel should have an opportunity to get together prior to the conference and discuss their views to help ensure they do not simply repeat each other's comments.
- There should be a representative from the DoD Comptroller community on the panel.
- The panel should be organized like a real panel. That is, rather than five 30-minute presentations each followed by a 15-minute Q&A, there should be five presentations

with a Q&A at the end. The whole session should be controlled by a strong moderator rather than by having a master of ceremonies. (Mr. Stan Soloway, Deputy Under Secretary of Defense for Acquisition Reform, was suggested as the moderator).

(*ACTION: Bill Quinn to take these suggests back to the OSD PEO/SYSCOM Planning Committee.*)

RESULT: The OSD Planning Committee was very receptive to these suggestions. The panel discussion is now a "real" panel to be moderated by Stan Soloway. There will be a representative from the OSD Comptroller on the panel. The presentation time for each panel member has been reduced from 30 to about 20 minutes; the Q&A session at the end will be about 60 minutes. Subject to the calendars of the six participants an effort will be made to have them all get together, at least by teleconference or videoconference prior to the PEO/SYSCOM Commanders' Conference. (Action: Bill Quinn to try to arrange calendars, IDA to host virtual or face-to-face meeting).

RESULT: The calendars of the Panel participants could not be reconciled to facilitate either a face-to-face or a virtual (telecon) meeting.

After some discussion about acquisition reform legislative initiatives Jon Etherton (AIA Legislative Affairs) joined the meeting. After further discussion he indicated he would provide a slide and point paper for Pete DeMayo that could be used to highlight the legislative environment, from a major systems acquisition perspective, in which Defense Acquisition Reform is operating. (*ACTION: Jon Etherton*)

RESULT: Jon Etherton's input was provided to Nick Kuzemka, Lockheed-Martin.

The remainder of the session was devoted to brainstorming what were the major "good" points and "bad" points of the current acquisition environment and the recent DoD acquisition reform initiatives. General agreement was reached that there were almost no purely good and bad initiatives. That is, the initiatives that were good and working well had elements that were bad, or where follow up was lacking. Also, certain failed initiatives had elements that were desirable—if they could be separated out. The seeming lack of applicability/emphasis of Acquisition Reform initiatives with regard to legacy systems (a very large portion of total acquisition and support) was acknowledged as a major problem area. After considerable discussion the group agreed on a strawman list of "good" and "bad" points from which Nick Kuzemka could develop a draft of the presentation for Mr. DeMayo.

The overall good areas/initiatives were as follows:

- *Civil/Military Integration and Commercial Item Improvement* (C-17 Engine a good example, Virtual Private Vendor (VPV) a bad one.)
- *Performance Based Requirements.* (Lots of success with the elimination of military specifications but what about legacy systems?)

- *Total Cost of Ownership (TOC).* (Good examples C-17 and F117 TSPR, bad examples AH-64 Apache, A-76. Many impediments to outsourcing—some within DoD. Many problems with VPV, DVD/PVD, working capital fund. Program managers have responsibility but not sufficient control over funding.)
- *Improvements in the Source Selection Process.* (On balance, use of past performance good, but no confidence that the data compiled will be visible and also no confidence the data will be timely, accurate, and relevant.)
- *Teaming and IPT.* (Good in that it promotes trust, flexibility, and communication. Bad because it transfers risk to industry.)
- *Acquisition Reform Pilot Programs.* (In general very good. However the reforms need to be followed up on and institutionalized—not obvious this is being done.)

These areas were considered to be more bad than good:

- *Program funding instability* (However, in the area of financial innovation, multi-year contracting and incremental funding are considered good and should be increased.)
- *Disconnect between the defense resource allocation and the acquisition communities.* (The programming and budgeting parts of the DoD BPPBS does not connect back into the acquisition community—and vice versa.)
- *The DoD Comptroller Community.* (Lack of innovation from this community, no support for acquisition reforms, and no advocacy to Congress for financial/budgeting policy initiatives to support Acquisition Reform initiatives.)

SECOND PEO/SYSCOM COMMANDERS' WORKSHOP
"Integrating Across the Life Cycle—Putting the Pieces Together"

Monday Afternoon, April 3, 2000 (DSMC, Howell Auditorium)

Times	Topic
1200-1330	Registration
1330-1700	Tutorials

Times	Track 1 Location	Track 2 Location	Track 3 Location	Track 4 Location
1330 to 1500	Topic: The acquisition workforce and the role of acquisition support teams throughout the life cycle Leaders: Ms. Marty Evans, USAF Acquisition Career Management and Resources Division Mr. David Franke, AFMC	Topic: Lessons learned and best practices in the R-TOC pilot programs Leader: Mr. Leon Reed, Institute for Defense Analyses	Topic: A PPBS primer Leader: Ms. Siobhan Tack, Professor of Financial Management, Defense Systems Management College	Topic: Industrial stewardship 1: mergers, acquisitions, and foreign investment –Implications for acquisition managers Leader: Mr. Victor Ciardello, Director of Financial and Economic Analysis Respondent: Mr. William Kovacic, George Washington University School of Law
1500-1530 Break				
1530 to 1700	Topic: Modification management and evolutionary acquisition Leaders: Maj David Snyder, USAF, Air Force Materiel Command Maj Ross McNutt, USAF, Acquisition Management Policy Division	Topic: SECDEF Corporate Fellows observations from industry Leaders: LTC Keith Armstrong CAPT Steve Enewold LtCol Brenda Johnson LtCol Darren McDew CDR Burt Palmer Col Arthur Sass Mr. Eric Briggs	Topic: Defense Working Capital Funds—how they work and the differences among the Services Leader: Mr. Jeffrey Bennett, Program Manager, Logistics Management Institute	Topic: Industrial stewardship 2: strategic planning for industrial capabilities—the role of the acquisition manager Leader: Mr. Martin Meth, Director of Industrial Capabilities and Assessments Respondent: Mr. George Pickett, Northrop Grumman Corporation

1700-1900 Reception

Tuesday, April 4, 2000 (DSMC, Howell Auditorium)

Times	Topic
0815-0820	**Conference Opening** – LtGen Thomas Ferguson, USAF (Ret)
0820-0825	**Welcome** – BrigGen Frank Anderson, USAF, Commandant, Defense Systems Management College
0825-0830	**Introduction of GEN Tuttle** – LtGen Thomas Ferguson
0830-0915	**Kickoff** – GEN William Tuttle Jr., USA (Ret), President, Logistics Management Institute
0915-1015	**Introduction and Discussion of Breakout Groups** **Moderator:** Mr. Richard Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition) **Panel:** Dr. Joseph Ferrara, Director, Acquisition Systems Management Mr. Lee Frame, Deputy Director for Conventional Systems, Operational Test and Evaluation Mr. Brad Gale, Director for Customer Initiatives, Lockheed Martin Aeronautics Company Mr. Louis Kratz, Assistant Deputy Under Secretary of Defense, Logistics Architecture Mr. William Mounts, Director of International and Commercial Systems Acquisition Mr. Robert Tuohy, Director for Plans and Programs, Defense Research and Engineering
1015-1045	**Break**

Times	Topic
1045-1700	**Participants attend their assigned session**

Concurrent Breakout Groups
Group 1: Speeding Technology Transition **Location: TBD** **Co-Chairs:** Dr. Michael McGrath, Vice President for Government Business, Sarnoff Laboratories Mr. John Todaro, Director Technology Transition, Defense Research and Engineering
Group 2: The Evolutionary Development Process **Location: TBD** **Co-Chairs:** Dr. Joseph Ferrara, Director, Acquisition Systems Management CAPT Paul Rosbolt, USN, J-8/Requirements and Acquisition Division, Joint Staff
Group 3: Test and Evaluation Support to the Program Manager **Location: TBD** **Co-Chairs:** Mr. Lee Frame, Deputy Director for Conventional Systems, Operational Test and Evaluation BG John Holly, USA, Program Executive Officer, Tactical Missiles
Group 4: Use of Economic Incentives for Effective Program Management **Location: TBD** **Co-Chairs:** Mr. Brad Gale, Director for Customer Initiatives, Lockheed Martin Aeronautics Company Mr. Tom Graves, Deputy Director for Plans and Programs, Aeronautical Systems Center Mr. Paul McMahon, Associate Dean of Research, Defense Systems Management College
Group 5: Tangled Sustainment Responsibility Knots **Location: TBD** **Co-Chairs:** Mr. Louis Kratz, Assistant Deputy Under Secretary of Defense, Logistics Architecture COL Gregory Potts, USA, Director of Readiness, U.S. Army Tank and Automotive Command LTC Joe Stenkamp, USA, Program Manager Palladin and FAASV
Group 6: Competitive Product Support **Location: TBD** **Co-Chairs:** Mr. William R. (Bob) Dickie, General Manager, Customer Support, Military Division, Parker Aerospace Mr. Lawrence "Buzz" Milan, Deputy Assistant Commander for Logistics, Naval Air Systems Command
Group 7: Early Logistics Planning: How Much is Enough With Evolutionary Development? **Location: TBD** **Co-Chairs:** Mr. Thomas Parry, Deputy Director for Systems Engineering; Acquisition, Technology and Logistics Mr. Robert Rassa, Director, System Supportability, Raytheon Electronic Systems Company
Group 8: Program Stability for Operations and Support Activities Location: TBD Co-Chairs: RADM Joseph Dyer, USN, Commander, Naval Air Warfare Center, Aircraft Division/Assistant Commander for Research and Engineering, Naval Air Systems Command Ms. Vicky Armbruster, Deputy Program Executive Officer, Tactical Missiles, U.S. Army
Group 9: Accelerating Reform into Action and Results with Rapid Improvement Teams **Location: TBD** **Chair**: Mr. William Mounts, Director of International and Commercial Systems Acquisition

Tuesday Evening, April 4, 2000 (Officers' Club)

ATTENDANCE @ EVENING SESSION IS STRONGLY ENCOURAGED

Times	Topic
1700-1715	**Travel to Officers' Club**
1715-1815	**No-Host Mixer with Heavy Hors D'oeuvres**
1815-1945	**Evening Panel – Commercial Industry Sustainment Processes: Can They be Applied to Support the Warfighter in Peace *and* War?** **Moderator:** VADM William Hancock, USN (Ret) **Panel:** RADM Raymond Archer, USN, Deputy Director, Defense Logistics Agency Mr. Harry Gregory, Vice President and General Manager, Collins Aviation Services Mr. James Madden, Vice President for Operations, Farrell Shipping Lines Mr. John Marshall, Vice President for Safety, Delta Airlines Mr. Ron Ziebell, Vice President, Oshkosh Truck Corp. Federal Express Corporation (Name TBD)

Wednesday Morning, April 5, 2000 (DSMC, Howell Auditorium)

Times	Topic
0800-0805	**Opening** – BrigGen Frank Anderson, USAF, Commandant, Defense Systems Management College
0805-0825	**Maintaining Competitive Sources in a Globalized Economy** – Mr. Jeffrey Bialos, Deputy Under Secretary of Defense (Industrial Affairs)
0825-0845	**A DoD Case Study in Modern Software Engineering Practice** – Dr. Stephen Cross, Director, Software Engineering Institute
0845-0945	**Program Management—How Can PPBS Help? (And Why at Times It Can't)** **Moderator:** Dr. Nancy Spruill, Director, Acquisition Resources and Analysis **Panel:** Mr. Irv Blickstein, Assistant Deputy Chief of Staff for Naval Operations (Resources, Warfare Requirements and Assessments) LtGen Frank Campbell, USAF (Ret) BG John Holly, USA, PEO, Tactical Missiles Mr. Robert Soule, Director Program Analysis and Evaluation
0945-1015	**Break**
1015-1045	**The Reengineered Interoperability Process** – Mr. John Osterholtz, Director, Information Integration and Interoperability
1045-1115	**DCMC and Risk Management** – MajGen Timothy Malishenko, Commander, Defense Contract Management Command (DCMC)
1115-1200	**An Interview with Dr. Jacques Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics)** – Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform)
1200-1215	**Travel to Officers' Club**

Wednesday Afternoon, April 5, 2000 (Officers' Club)

Times	Topic
1215-1330	**Lunch, Speaker – Acquisition Reform, Where We've Been and Future Challenges,** Dr. Sheila Widnall, Institute Professor, The Massachusetts Institute of Technology
1330-1345	**Break**
1345-1430	**Integrated Breakout Group Report** – LtGen Thomas Ferguson, USAF (Ret)
1430-1515	**Question and Answer Session** – The Honorable David Oliver, Principal Deputy Under Secretary of Defense (Acquisition, Technology and Logistics)
1515	**Closing**

PEO/SYSCOM COMMANDERS' CONFERENCE
"Continuous Improvement and Innovation—Everyone's Responsibility"

Wednesday Morning, October 11, 2000 (DSMC, Howell Auditorium)

Times	Topic
0700-0800	Registration (Breakfast)
0800-1130	Tutorials

0800-0930 Session A				
Track 1a **Location: TBD**	**Track 2a** **Location: TBD**	**Track 3a** **Location: TBD**	**Track 4a** **Location: TBD**	**Track 5a** **Location: TBD**
Topic: Knowledge Management Leaders: Mr. Randy Adkins, Knowledge Management Pgm Mgr USAF; Mrs. Alex Bennet, Deputy CIO for Navy Enterprise Integration; Dr. James Edgar Jr., Asst Dept Asst Secretary of the Army for Procurement; Mr. William Jones, Navy Acquisition Reform Office	Topic: Cost of Delay; Evolutionary Acquisition; and Spiral Development Leader: Maj Ross McNutt, USAF, Acquisition Management Policy Division	Topic: Commercial Practices Leader: Ms. LeAntha Sumpter, Assistant Deputy Under Secretary of Defense (Acquisition Processes and Policies)	Topic: Implementing Alternative Dispute (ADR) Resolution Leaders: Mr. Joseph McDade Jr., Assoc General Counsel USAF; Col Cheryl Nilsson, USAF, Chief ADR Division; Col. Barry Wilson, USAF, Ch Contract Policy Division	Topic: Integrated Project Management (Part 1) Leaders: Mr. Bob Kayuha and Mr. Rich Leclaire, Dayton Aerospace Corp
0930-1000 Break				
1000-1130 Session B				
Track 1b **Location: TBD**	**Track 2b** **Location: TBD**	**Track 3b** **Location: TBD**	**Track 4b** **Location: TBD**	**Track 5b** **Location: TBD**
Topic: Information Assurance: Understanding the Concept and the Threat Leaders: CAPT J. Katharine Burton, USN, Director, Defense-wide Information Assurance Program; Dr. Michael J. Shore, Chief, Force Protection & Technology Applications, DTRA; Mr. Rick A. Harvey, Research Staff Member, Institute for Defense Analyses	Topic: Integrated Digital Environment Leader: RADM Gwilym Jenkins Jr, USN, Deputy for Acquisition Business Management	Topic: Implementing Performance Based Milestone Payments Leader: Mr. Craig Webster, Research Fellow, LMI; Mr. Dan Morrison, C-17 Production Contracts & Pricing, The Boeing Company; Mr. Jim Steggal, Manager Govt Acquisition Policy, Rockwell Collins Inc.	Topic: Reverse Auctioning Leaders: LtCol Russell Blaine, USAF and Maj Gregory Snyder, USAF, Office of the Dept Asst Sec'y of the Air Force (Contracting); CAPT Michael Darby, USN, Director of Contracts, Navy Inventory Control Point, Mr. Matthew Meinert, Army Comm & Elect Command	Topic: Integrated Project Management (Part 2) and Past Performance Leaders: Mr. Bob Kayuha and Mr. Rich Leclaire of Dayton Aerospace Corp and Mr. William Basham, Senior Engineer, Source Selection Office, NAVAIR

1130-1300 Lunch

Wednesday Afternoon, October 11, 2000 (DSMC, Howell Auditorium)

Times	Topic
1300-1305	**Conference Opening** – LtGen Thomas Ferguson, USAF (Ret)
1305-1310	**Welcome** – Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform)
1310-1315	**Introduction of Dr. Gansler** – LtGen Thomas Ferguson
1315-1415	**Keynote** – Honorable Jacques Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics)
1415-1445	**Summary of Activities Since Last Conference** – Mr. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform)
1445-1515	**Break**
1515-1700	**Panel: DoD S&T Executives**
	Moderator: Dr. Delores Etter, Deputy Under Secretary of Defense (Science and Technology)
	Panel: Dr. Michael Andrews, Deputy Assistant Secretary of the Army (Research and Technology) RADM Jay M. Cohen, USN, Chief of Naval Research Dr. Donald Daniel, Deputy Assistant Secretary of the Air Force (Science, Technology and Engineering)
1700-1745	**S&T Resources for Acquisition Managers** – Mr. Robert Tuohy, Director, Program Analysis, Office of the Deputy Under Secretary of Defense (Science and Technology)
1745-1930	**Exhibits/Reception**

ATTENDANCE @ EVENING SESSION IS STRONGLY ENCOURAGED

Thursday Morning, October 12, 2000 (DSMC, Howell Auditorium)

Times	Topic
0630-0730	**Breakfast**
0730-0900	**Panel: CMI Perspectives** **Moderator:** Mr. Ric Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition) **Panel:** RADM Raymond Archer, USN, Deputy Director, Defense Logistics Agency Mr. Barry Cohen, Director of Civil Military Integration, Honeywell Inc. MajGen Timothy Malishenko, USAF, Director, Defense Contract Management Agency (DCMA) MG, Joseph Yakovac, USA, Program Executive Officer, Ground Combat and Support Systems
0900-0930	**Break**
0930-1000	**Lessons Learned on Use of Commercially Developed Products** – Mr. Rob Deadrick, F/A-18E/F Advanced Mission Computer and Displays Program Manager
1000-1130	**Panel: Balancing Risk with Innovation** **Moderator:** Ms. LeAntha Sumpter, Assistant Deputy Under Secretary of Defense (Acquisition Processes and Policies) **Panel:** RADM "Gib" Godwin, USN, Program Executive Officer for Tactical Aircraft Programs LtGen Robert Raggio, USAF, Commander Aeronautical Systems Center MG, Joseph Yakovac, USA, Program Executive Officer, Ground Combat and Support Systems
1130-1300	**Exhibits/Lunch**

Thursday Afternoon, October 12, 2000 (DSMC, Howell Auditorium)

Times	Topic
1300-1430	**Panel: R-TOC Is Real** **Moderator:** Mr. Louis Kratz, Assistant Deputy Under Secretary of Defense, Logistics Architecture Dr. Spiros Pallas, Principal Deputy to the Director, Strategic and Tactical Systems **Panel:** BrigGen Jack Hudson, USAF, Deputy Program Director Joint Strike Fighter Mr. Lawrence "Buzz" Milan, Deputy Assistant Commander for Logistics, Naval Air Systems Command Mr. Glen Butry, Business Financial Manager, Army Program Executive Officer Aviation
1430-1515	**Acquisition 2005 Task Force Report**– Mr. Keith Charles, Task Force Director
1515-1545	**Break**
1545-1715	**Service Acquisition Executives' Perspectives of Reform's Achievements and Remaining Challenges**
1545-1615	Honorable Page Hoeper, Assistant Secretary of the Army (Acquisition, Logistics and Technology)
1615-1645	Honorable Lee Buchanan, Assistant Secretary of the Navy (Research, Development and Acquisition)
1645-1715	Honorable Lawrence Delaney, Assistant Secretary of the Air Force (Acquisition)

Thursday Evening, October 12, 2000 (Officers' Club)

ATTENDANCE @ EVENING SESSION IS STRONGLY ENCOURAGED

Times	Topic
1715-1730	**Travel to Officers' Club**
1730-1830	**No-Host Mixer with Heavy Hors D'oeuvres**
1830-2000	**Evening Panel – A Question and Answer Session with Acquisition Leadership** **Moderator:** The Honorable David Oliver, Principal Deputy Under Secretary of Defense (Acquisition, Technology and Logistics) **Panel:** Honorable Page Hoeper, Assistant Secretary of the Army (Acquisition, Logistics and Technology) Honorable Lee Buchanan, Assistant Secretary of the Navy (Research, Development and Acquisition) Honorable Lawrence Delaney, Assistant Secretary of the Air Force (Acquisition) Mr. Harry Schulte, Acquisition Executive, Special Operations Command

Friday Morning, October 13, 2000 (DSMC, Howell Auditorium)

Times	Topic
0700-0800	**Breakfast**
0800-0945	**Panel: Evolutionary Acquisition at Work**
	Moderator: Dr. George Schneiter, Director, Strategic and Tactical Systems
	Panel:
	LtGen Bruce Carlson, USAF, Director for Force Structure, Resources and Assessment Mr. Philip Coyle, Director, Operational Test and Evaluation BrigGen Jack Hudson, USAF, Deputy Program Director Joint Strike Fighter LtGen Ronald Kadish, USAF, Director Ballistic Missile Defense Organization Mr. John Landon, Director Program Analysis and Integration, Command Control, Communications and Intelligence
0945-1015	**Break**
1015-1200	**Panel: Industry Associations' Perspectives on Reform's Achievements and Remaining Challenges**
	Moderator: Gen Larry Welch USAF (Ret), President, Institute for Defense Analyses
	Panel: The Honorable John W. Douglass, President and CEO, Aerospace Industries Association of America The Honorable David McCurdy, President, Electronic Industries Alliance Mr. Harris Miller, President, Information Technology Association of America LTG Lawrence Skibbie, USA (Ret), President, National Defense Industrial Association LtGen C. Norman Wood, USAF (Ret), President and CEO, Armed Forces Communications and Electronics Association
1200	**Closing**