

DSB Newsletter

January 2003

Dr. William Schneider, Jr., Chairman

**Mr. Vince Vitto, Vice Chairman
Director**

CDR Brian Hughes, Acting Executive

Chairman's Corner

The 2003 DSB Summer Study topics have been selected and chartered as follows:

DoD Role in Homeland Defense:

Co-Chairs: ADM Don Pilling, USN (Ret) and Mr. Don Latham

Future Strategic Strike Forces:

Co-Chairs: Gen Mike Carns, USAF (Ret) and ADM Dennis Blair, USN (Ret)

We look forward to the deliberations and conclusions from each of these timely efforts. If you have an interest in joining either Summer Study please contact the study leaders.

In the coming weeks and months, we will be initiating several other new studies that will tap into the expertise and capabilities of every member in support of the ongoing tasks in the Department of Defense.

It was with solemn sadness that we mourn the passing of Mr. Dave Heebner, a long time board member and our 2002 Fubini Award Winner, who died January 3, 2003. Mr. Heebner was truly a giant among us who unflinchingly persevered in service to his country. We should all have heroes such as this.

Dr. William Schneider, Jr.

DSB MEETING DATES FOR 2003

- **21-22 May 2003 Spring Quarterly**
- **4-15 August 2003 Summer Study Conclusion**
- **22-23 October 2003 Fall Quarterly**

DSB Secretariat Staff

CDR Brian Hughes, Acting Executive Director

Brian.hughes@osd.mil

Ms. Brenda Leckey, Executive Officer

Brenda.leckey@osd.mil

Ms. Patricia A. Shirley, Executive Assistant

Patricia.shirley@osd.mil

CDR Dave Waugh, Navy Military Assistant

David.Waugh@osd.mil

LTC Scott Dolgoff, Army Military Assistant

Scott.dolgoff@osd.mil

LtCol Roger W. Basl, Air Force Military Assistant

Roger.basl@osd.mil

Voice: 703-695-4158 Fax: 703-697-1860

DSB WEBSITE: www.acq.osd.mil/dsb

Membership

The Board continues to actively solicit suggestions for highly qualified scientific and technical candidate members, with special emphasis on women and minority candidates. Prior Task Force participation offers an individual, OSD, and the Board an opportunity to determine a person's interest and suitability to Board activities and is a desirable prerequisite to membership on the Board. The roster of current Board members is included in this newsletter.

Staff Changes

CDR Brian Hughes retires from active duty effective 1 May 2003 but comes back to the DSB as our new Executive Director effective 30 January 2003.

CDR Dave Waugh arrived to the DSB staff as our new Navy Military Assistant on January 21. He comes to us from the Navy International Program Office. Please extend Dave a warm welcome.

Task Force Status

- **2003 Summer Study: DoD Role in Homeland Defense (Co-Chairs: ADM Don Pilling, USN (Ret) and Mr. Don Latham)** The study, co-sponsored by USD(AT&L), Assistant to the Secretary of Defense (Nuclear, Chemical, and Biological Defense Programs), Under Secretary of Defense (Policy), and Northern Command (NORTHCOM), is tasked to address the Department of

Defense (DoD) roles and missions in homeland security. (LTC Dolgoff)

- **2003 Summer Study: Future Strategic Strike Forces (Co-Chairs: Gen Mike Cams, USAF (Ret) and ADM Dennis Blair, USN (Ret))** The study, co-sponsored by USD(AT&L) and the Director, Strategic and Tactical Systems will assess the future strategic strike force needs of the Department of Defense. (LtCol Basl)
- **2002 Summer Study: Special Operations and Joint Forces in Support of Countering Terrorism (Co-Chairs: Dr. Ted Gold and Mr. Don Latham)** The study, sponsored by USD(AT&L), JFCOM and S&TS, addressed how the Department of Defense can strengthen the military operational capability of its special operations forces and other joint forces against potential terrorist threats and other asymmetric threats. **The draft report is in security review.** (CDR Waugh)
- **Chemical Warfare Defense** (Co-chairs: Dr. George Whitesides & Dr. Regina Dugan) This study, co-sponsored by USD(AT&L) and DARPA, assessed the possibility of controlling the risk and consequences of a CW attack to acceptable levels within the next five years. **The Task Force is drafting a final report.** (LTC Dolgoff)
- **Training for Future Conflicts** (Co-chairs: Dr. Joe Braddock & Dr. Ralph Chatham) This study, co-sponsored by USD(AT&L) and Director for Readiness and Training in

OUSDP&R), is a follow-on to the January 2001 Training Superiority & Training Surprise report. The Task Force will identify and characterize the education and training requirements demanded by Joint Vision 2020 which are markedly different from what is being done today. Operating under a revised TOR with added emphasis on joint and interoperability training, **the Task Force is drafting a final report.** (LtCol Basl)

- **Operation Enduring Freedom Lessons Learned** (Chair: Gen James McCarthy , USAF (Ret)) This study, co-sponsored by USD(AT&L), VCJS & CENTCOM, is examining current activities of Operation Enduring Freedom to determine both near- and long-term technical and operational considerations that could be used to improve this operation and future campaigns initiated in the War Against Terrorism. **The Task Force has formed into smaller teams to investigate individual issues in further depth. A second Interim Report is planned for Dec 2002.** (LTC Dolgoff)
- **Discriminant Use of Force** (Co-Chairs: Dr. Joshua Lederberg & Dr. Ted Gold) This study, co-sponsored by USD(AT&L) and the Director, Strategic and Tactical Systems, is conducting a comprehensive study of the ends and means of precision compellence, of the nuanced use of force, in concert with coalition partners, to achieve political, economic, etc., changes in countries affecting US interests. **The Task Force is drafting a final report.** (LtCol Basl)
- **Intelligence in Support of the War Against Terrorism** (Co-Chairs: Dr. Joe Markowitz and ADM Bill Studeman (USN, Ret.)) This study, co-sponsored by USD(AT&L), the Assistant Secretary of Defense (Command, Control, Communication, and Intelligence), and the Director of Central Intelligence will identify capabilities, technologies and approaches for strengthening intelligence in support of the war against terrorism. **The final report is in security review.** (CDR Waugh)
- **Role and Status of DoD Red Teaming Activities** (Co-Chairs: Dr. Ted Gold and Dr. Bob Hermann) This study, co-sponsored by USD(AT&L) and the Director, Strategic and Tactical Systems, will review the role and status of Red Teaming in the DoD and recommend ways to make it a more effective tool. **The Task Force is in progress.** (LTC Dolgoff)
- **Defense against Clandestine Nuclear Attack.** (Co-Chairs: Dr. William Graham and Dr. Richard Wagner) This study, co-sponsored by USD(AT&L) and the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), will assess the adequacy of the U.S. ability to detect, identify, respond, and prevent unconventional nuclear attacks by terrorist or sub-national entities. **The Task Force is in progress.** (LTC Dolgoff)
- **Wideband RF Systems** (Chairman: Dr. Gary Minden) This study, co-sponsored by USD(AT&L) and ASD(C3I), will review and advise on key aspects of the policy and technology issues associated with the military applications of Wideband RF systems. **The final report is in draft.** (LtCol Basl)
- **B-52 Re Engining** (Chairman: Gen Mike Carns, USAF (Ret)) This task force, sponsored by USD (AT&L), is tasked to review and advise on key aspects of the policy and technology issues associated with re-engining the USAF B-52 fleet. **Final Report is in security review.** (LtCol Basl)
- **Interference Capabilities** (Chairman: Mr. Peter Marino) This task force, co-sponsored by USD (AT&L), The Director of Central Intelligence, and the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), is tasked to identify any potentially high-payoff and high-threat capabilities and understand the impact of any new capability on current and future systems. The Task Force should strive to understand the phenomenology of any proposed capability. **The Task Force is in progress.** (CDR Waugh)
- **Unmanned Aerial Vehicles (UAVs) and Uninhabited Combat Aerial Vehicles (UCAVs)** (Co-Chairs: MGEN Ken Israel, USAF (Ret) and Mr. Bob Nesbit) This task force, co-sponsored by USD (AT&L), the Assistant Secretary of Defense (Command,

Control, Communications, and Intelligence), and the Director, Strategic and Tactical Systems, is tasked to conduct a comprehensive review of the Department's plans for development and fielding of UAV and UCAV systems. **The Task Force is in progress.** (CDR Waugh)

- **DSB/AFSAB Joint Task Force on Acquisition of National Security Space Programs** (Chairman: Mr. A. Thomas Young) This Task Force, co-sponsored by USD (AT&L) and the Secretary of the Air Force, directs the Defense Science Board, in conjunction with the Air Force Scientific Advisory Board, to review the acquisition of National Security Space Programs and to make recommendations to improve the acquisition of space programs from their initiation to deployment. **The Task Force is drafting a final report.** (LtCol Basl)
- **Seabasing** (Co-Chairs: Dr. Bill Howard and ADM Don Pilling, USN (Ret)) This Task Force, co-sponsored by USD (AT&L), the Secretary of the Navy, and the Director, Strategic and Tactical Systems (S&TS), is tasked to assess how seabasing of expeditionary forces can best serve the nation's defense needs through at least the first half of the 21st century. **The Task Force is in progress.** (CDR Waugh)
- **Unexploded Ordnance - UXO** (Co Chairs: Dr. Delores Etter and Mr. Bill Delaney) This study, co-sponsored by USD(AT&L) and the Deputy Under Secretary of Defense (Installations and Environment), is chartered to address ways to reduce the extremely high cost of UXO clean up and identify technologies to help minimize the environmental impact of continued live-fire training and testing. **The Task Force is in progress.** (LTC Dolgoff)
- **Smallpox Vaccine Down Select** (Chairman: Dr. George Poste) This Task Force, co-sponsored by USD (AT&L) and the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), is tasked to perform an independent evaluation of the Department of Defense and Department of Health and Human Services smallpox vaccine candidates.

The Task Force is in progress. (CDR Waugh)

- **Exploiting Technology to Transform Military Manpower** (Co-Chairs: Mr. Michael Bayer and Dr. Jim Wade) This Task Force, co-sponsored by USD (AT&L) and the Director of Defense Research and Engineering, is tasked to identify technology options that will reduce military manpower burden of asynchronous threat operations at home and abroad, and recommend a strategic approach to transforming military manpower beginning with the Force Protection mission. **The Task Force is in progress.** (LtCol Basl)
- **Joint Experimentation** (Chairman: Dr Ted Gold) This task force, co-sponsored by USD (AT&L) and the Commander, United States Joint Forces Command, is tasked to examine joint experimentation programs and activities and to recommend ways to enhance the contributions of joint experimentation to transformation. **The Task Force is in progress.** (LTC Dolgoff)
- **Managing Foreign Intelligence by Focusing on Ends vice Means** (Co-Chairs: Dr. Craig Fields and Dr. Joe Markowitz) This study, co-sponsored by USD(AT&L) and the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), will address alternative ways of managing US foreign intelligence endeavors in support of national security, by focusing not on the means by which intelligence information is collected, but rather the ends it is to serve. **The Task Force is in progress.** (CDR Waugh)

DSB Reports published since Oct 2002:

- **Future of the Aircraft Carrier (October 2002)**
- **Homeland Defense Against BioTerrorism (November 2002)**
- **2002 Summer Study: Missile Defense (December 2002)**

Army Science Board (ASB)

Dr. Joe Braddock – Chairman

Dr. James Tegnalia – Vice Chairman

LTC(P) Jeff Willey - Executive Secretary

MAJ Bob Grier - Executive Officer

FY03 Overarching Studies

For the first time in a number of years, the ASB will conduct two concurrent summer studies. We will brief the results of both these studies to the senior Army leaders at the University of California, Irvine Beckman Center on 24 July, 2003.

Force Protection Technologies for the 2010-2020 Timeframe. (Co-chaired by Mr. Gilbert Herrera, Mr. Frank Kendall, and Dr. Marygail Brauner). The study is organized into six panels: **Research and Past Works Review** chaired by Dr. Robbi Perna, **Vulnerability and Threat Assessment/Intelligence Requirements** chaired by Dr. Tony Hyder, **Operations** chaired by GEN David Maddox (USA, Retired), **Technology Solutions** co-chaired by Dr. Ed Brady and Dr. Peter Swan, **Analysis and Modeling** chaired by Dr. Stuart Starr, and **Interfaces with Local Governments, Commerce and Infrastructures** chaired by Mr. Alan Schwartz. As the title implies, the study will assess threats to the force in the 2010-2020 timeframe and suggest technologies that hold promise for addressing those threats.

Challenges and Opportunities in Developing the Block II and Block III Future Combat System (FCS) (Co-chaired by Dr. Frank Akers, Dr. Warren Morrison, and Dr. Bob Douglas). This study is organized into five panels: **Architecture and Information Integrity** co-chaired by LTG Bill Campbell (USA, Retired) and Dr. Peter Lee, **Sensor Quality and Integrity** co-chaired by Dr. Jasper Lupo and Dr. Ed Reedy, **Platforms and Weapons** chaired by Mr. Dennis Carlson, **Operational Performance Assurance** chaired by LTG Butch Funk (USA, Retired), and **Technical and Operational Red Teaming** chaired by Mr. Neale Cosby. The study will focus on identifying promising technologies to improve the lethality of weapons and achieve high survivability of soldiers and platforms. We were asked to suggest technology insertion priorities and assess technical and integration risks affecting the accelerated transition of technology into the

FCS. The study will examine information management challenges resulting from the expansion of C4ISR capabilities that leverage future sensors, processors, and novel platforms and the difficult task of automating sensor and data fusion for large numbers of sensors to enable: automated target weapon pairing, augmented soldier-in-the-loop decision-making.

Special Studies

- **Aviation Study** (Co-chaired by Mr. Edward Brady and Mr. Ira Kuhn) This study examined roles and missions for both manned and unmanned aerial vehicles in the Objective Force. Sub topics include arming unmanned systems, teaming manned and unmanned systems, applications for unmanned systems in combat support and service support roles, and air-to-air combat applications. This study concluded in December and is being briefed back to the sponsors and Senior Army Leadership.

For more information on the ASB visit:
<https://webportal.saalt.army.mil/SARD-ASB/default.htm>

Naval Research Advisory Committee (NRAC)

Mr. John M. “Jack” Bachkosky – Chair
Dr. Robert C. Spindel – Vice-Chair
CAPT Dennis L. Ryan, III USN (Ret.) - Program Director

The NRAC held its Fall Meeting on 19 November, 2002, at the Naval Research Laboratory. The primary topics of discussion were feedback from the 2002 Summer Study, and proposed topics for the 2003 Summer Study.

Current Studies:

Transformational Opportunities for Naval Utilization of Space This study has commenced. The Terms of Reference is being finalized with the sponsor.

2003 Summer Study Study topics for the FY 2003 studies have been solicited. Final selection is expected to occur in February.

For more information on NRAC activities visit
<http://nrac.onr.navy.mil/webpage>

Air Force Scientific Advisory Board (SAB)

Dr. Daniel E. Hastings – Chairman
Dr. Ronald P. Fuchs - Vice Chairman
Lt Gen Steven B. Plummer - Military Director
Col Charles D. Bowker - Executive Director

Kickoff Meeting 2003

This year's annual Kickoff Meeting was held at the SAFTAS Conference Facility in Rosslyn, VA, from 22 – 24 January. Members were briefed by various USAF, DoD, and other US government officials. Principal speakers included Lt Gen James E. Cartwright, USMC, J-8, Lt Gen Ronald E. Keys, USAF/XO, and Lt Gen Frank B. Campbell, USAF, CIA.

Members also met by study committee to hold strategy sessions to map out this year's summer study on *Unmanned Aerial Vehicles in Perspective: Effects, Capabilities, and Technologies*, and two *ad hoc* studies on *CONOPS and Technology to Support Long-Range Strike Operations*, and *Technology for ISR Machine to Machine Integration*. Study findings will be outbriefed to Dr. James G. Roche, SecAF and General John J. Jumper, CSAF, at the end of FY 03.

Study committees will now make fact-finding visits to various DoD and AF sites and installations. The Board will meet in its entirety next at Eglin AFB this spring.

Science & Technology Quality Review Panels

FY 03 Science and Technology Quality Reviews of AFRL Directorates were completed in Dec 02. Findings will be outbriefed to Maj. Gen. Paul D. Nielsen, AFRL/CC on 27 Jan 03, Gen. Lester L. Lyles, AFMC/CC on 18 Feb 03, and to Dr. James G. Roche, SecAF and General John J. Jumper, CSAF on 20 Feb 03.

Publishing Status

The following studies are awaiting security and publication clearance from OSD and the Air Staff:

- The subsequent volume of *Air Force Command and Control: The Path Ahead*
- *Immediate Attack in Deep and Hostile Territory*
- The subsequent volume of *Predictive Battlespace Awareness to Improve Military Effectiveness*
- Subsequent volumes of *Sensor Technology for Difficult Targets*

The following studies have been printed and are in distribution:

- *Database Migration for Command and Control*
- *Predictive Battlespace Awareness to Improve Military Effectiveness, Volume 1*

The following studies are being outbriefed to OSD and AF leadership:

- *National Security Space Programs (DSB/SAB)*

Calendar of Upcoming SAB Events

Spring Board

14 – 18 April 03, Eglin AFB

Summer Session

15 – 27 June 03, Beckman Center, Irvine, CA

For information on AF/SB studies and terms of reference, visit <http://www.sab.hq.af.mil/>. To request further information or submit comments email Paul.Hazell@Pentagon.AF.mil

DIA Advisory Board

Dr. Michael Wartell – Chairman
Mr. Lawrence Carnegie, Program Manager & Executive Secretary

The new DIA Advisory Board is reorienting, reorganizing, and relocating. The board has revised its charter and will be adding new members with expertise in homeland security; regional and cultural studies; information technology and management; human resources; and financial management. The Board's array of specialized disciplines provides innovative

perspectives on operational and managerial efforts in the commercial sector as well as other government organizations. Several Board panels are presently in various stages of working four defense intelligence priorities: Measurement and Signature Intelligence technology transition; defense intelligence transformation; use of performance metrics; and work force planning. In addition, the DIA leadership is evaluating additional intelligence priorities for the Board. Finally, the Board has relocated from the Defense Intelligence Analysis Center to the Pentagon.

Defense Science Board Active Task Forces

Green – Army Mil Assist

Light Blue – Air Force Mil Assist

Dark Blue – Navy Mil Assist

| ID | Task Force | TOR Date | Finish | Sep '02 | Oct '02 | Nov '02 | Dec '02 | Jan '03 | Feb '03 | Mar '03 | Apr '03 | May '03 | Jun '03 | Jul '03 | Aug '03 |
|----|----------------------------------------------------------------|----------|----------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | | | | | | | | | | | | | | | |
| 2 | 2002 SS: SPCL OPS/JT FORCES IN SUPPORT OF COUNTERING TERRORISM | 1/2/02 | 11/20/02 | Final Report in Draft | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | TRAINING FOR FUTURE CONFLICT | 12/12/00 | 9/30/02 | Final Report in Draft | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | CHEMICAL WARFARE DEFENSE | 1/2/01 | 9/30/02 | Final Report in Draft | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | ENDURING FREEDOM LESSONS LEARNED | 12/14/01 | 12/2/02 | 2nd Interim Report in Draft | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | DISCRIMINANT USE OF FORCE | 12/26/01 | 12/11/02 | Final Report in Draft | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | |
| 12 | INTELLIGENCE IN SUPPORT OF WAR AGAINST TERRORISM | 1/10/02 | 11/1/02 | Final Report in Security Review | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | ROLE AND STATUS OF DOD RED TEAMING ACTIVITIES | 2/14/02 | 10/31/02 | In Progress | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | DEFENSE AGAINST CLANDESTINE NUCLEAR ATTACK | 4/9/02 | 12/31/02 | Final Report in Draft | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | WIDEBAND RF SYSTEMS | 5/9/02 | 12/30/02 | Final Report in Draft | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | B-52 RE-ENGINEING | 6/26/02 | 10/31/02 | Final Report in Security Review | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | INTERFERENCE CAPABILITIES | 6/26/02 | 10/31/02 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | UNMANNED AERIAL VEHICLES & UNINHABITED COMBAT AERIAL VEHICLE | 7/15/02 | 6/30/03 | In Progress | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |
| 26 | ACQUISITION OF NATIONAL SECURITY SPACE PROGRAMS | 8/2/02 | 2/28/03 | Final Report in Draft | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | SEABASING | 9/4/02 | 6/30/03 | In Progress | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | UNEXPLODED ORDNANCE | 9/26/02 | 7/28/03 | In Progress | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | |
| 32 | SMALLPOX VACCINE DOWNSELECT | 10/2/02 | 3/28/03 | In Progress | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | EXPLOITING TECHNOLOGY TO TRANSFORM MILITARY MANPOWER | 10/4/02 | 6/30/03 | In Progress | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | JOINT EXPERIMENTATION | 10/10/02 | 3/28/03 | In Progress | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | INTELLIGENCE ENDS VICE MEANS | 12/19/02 | 10/17/03 | In Progress | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | 2003 SS: DoD ROLE IN HOMELAND DEFENSE | 1/3/03 | 11/20/03 | In Progress | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | 2003 SS: FUTURE CONVENTIONAL AND NUCLEAR STRATEGIC STRIKE | 1/31/03 | 11/20/03 | In Progress | | | | | | | | | | | |

Defense Science Board Members and Ex Officio

CHAIRMAN

Dr. William Schneider, Jr. International Planning Services, Inc.

VICE CHAIRMAN

Mr. Vincent Vitto, Charles Stark Draper Laboratory

MEMBERS

Mr. Samuel D. Adcock, EADS, Inc
Dr. William F. Ballhaus, Jr., The Aerospace Corporation
Mr. Michael J. Bayer, Private Consultant
Mr. Denis A. Bovin, Bear, Stearns & Co., Inc.
Gen Michael P.C. Carns, USAF (Ret.), Private Consultant
Mr. William P. Delaney, MIT Lincoln Laboratory
Dr. Delores M. Etter, United States Naval Academy
Mr. Bran Ferren, Applied Minds Inc.
Dr. Theodore S. Gold, Institute for Defense Analyses
Dr. William R. Graham, National Security Research, Inc.
GEN William Hartzog, USA (Ret.), Burdeshaw Associates, Ltd.
Dr. Robert J. Hermann, Global Technology Partners
Dr. William G. Howard, Jr., Private Consultant
Dr. Anita K. Jones, University of Virginia

MEMBERS EX OFFICIO

Dr. Joseph Braddock, Army Science Board
RADM Wayne E. Meyer, USN (Ret.), BMD Advisory Committee
Mr. Richard Perle, Defense Policy Board

SENIOR FELLOWS

Dr. Craig I. Fields, Corporate Director
Dr. John S. Foster, Jr., Private Consultant
Dr. George H. Heilmeyer, Telcordia Technologies
Dr. Paul G. Kaminski, Technovation, Inc.
Dr. Joshua Lederberg, The Rockefeller University
Mr. Walter E. Morrow, Jr., MIT Lincoln Laboratory

Dr. Ronald L. Kerber, Private Consultant
Mr. Donald C. Latham, General Dynamics Corp.
Mr. V. Larry Lynn, Private Consultant
Mr. Peter A. Marino, Private Consultant
Dr. Joseph Markowitz, Private Consultant
Mr. Arthur L. Money, Private Consultant
Mr. Robert F. Nesbit, The MITRE Corporation
Mr. Philip A. Odeen, Executive Consultant
Admiral Donald L. Pilling, USN (Ret.), Logistics Management Institute
Dr. George Poste, Health Technology Networks
Dr. Anna Marie Skalka, Fox Chase Cancer Center
Mr. Albert E. Smith, Lockheed-Martin Space Systems Group
ADM William O. Studeman, USN (Ret.), Northrop Grumman.
Dr. James P. Wade, Jr., Defense Group, Inc.
Gen Larry D. Welch, USAF (Ret.), Institute for Defense Analyses
Dr. George M. Whitesides, Harvard University

Dr. Daniel E. Hastings, Air Force Scientific Advisory Board
Dr. Michael Wartell, DIA Advisory Board
Mr. John M. (Jack) Bachkosky, Naval Research Advisory Committee