

**IR&D UPDATE BY OASD (R&E)**

March 21, 2013  
The Boeing Company  
Arlington, VA  
Event #372D

**INTRODUCTION**

One of the goals of the Department's IR&D Better Buying Power initiative is to better communicate Department of Defense investment priorities to industry. To support this goal, Dr. Brothers will discuss DoD S&T Directions and Initiatives to better align industry IR&D investments with DoD Priorities. Col McFarland will provide an update on IR&D activities that includes a review of the initiative since 2011 and planned activities in 2013.

**AGENDA**

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|-----------------|---|
| <b>9:00 AM</b>  | <b>Registration</b>   |
| <b>10:00 AM</b> | <b>Welcome and Introductory Remarks</b><br><b>Major General Barry D. Bates, USA (Ret), Vice President, Operations,</b><br><b>NDIA</b> |
| <b>10:10 AM</b> | <b>Dr. Reginald Brothers, Deputy Assistant Secretary of Defense for</b><br><b>Research, OASD (R&amp;E)</b>                            |
| <b>10:40 AM</b> | <b>Colonel Brooks McFarland, USAF, current IR&amp;D Program Lead,</b><br><b>OASD (R&amp;E)</b>  |
| <b>11:45 AM</b> | <b>Q&amp;A</b>  |
| <b>12:00 PM</b> | <b>Adjourn</b>  |

**SAVE THE DATE**

**14th Annual Science & Engineering Technology Conference / Defense Tech Exposition**

*Evolving the Defense S&T Program to Support*

*"Sustaining U.S. Global Leadership: Priorities for 21st Century Defense"*

Event #3720, April 24-26, 2013

Gaylord National Hotel, National Harbor, MD

<http://www.ndia.org/meetings/3720>

Report By: Darren Rhyne, Professor of Systems Engineering Management, DAU/CNE-ET, 21 March 13.

Who: (1) MG Barry D. Bates, USA (Ret), of the National Defense Industrial Association (NDIA), (2) Dr. Reginald Brothers and Col Brooks McFarland (USAF) of the Office of the Assistant Secretary of Defense for Research & Engineering [OASD(R&E)], and (3) approximately 70 attendees from DoD, Dept of State, and Industry.

What: OASD(R&E) Independent Research & Development (IR&D, or IRAD) Update.

When: Thursday, 21 March 2013, 1000-1200 EDT.

Where: The Boeing Company, Conference Room 160, 1200 Wilson Blvd, Arlington (Rosslyn), VA.

Why: Dr. Brothers discussed DoD S&T challenges and how the current IR&D initiative seeks to address some of those. Col McFarland provided an update on IR&D activities, mainly focusing on the Defense Innovation Marketplace web site that began as a Better Buying Power 1.0 initiative in November 2011. The two OASD(R&E) representatives gave prepared presentations for a total of 50 minutes, followed by an hour of comments, questions, and answers between the audience and OASD(R&E) representatives.

1. MG Bates, Vice President of Operations for the NDIA, opened the meeting and introduced the two speakers from the OASD(R&E), Dr. Brothers and Col McFarland.
2. Remarks by Dr. Brothers, Deputy Assistant Secretary of Defense for Research, 1010-1030.
  - a. Dr. Brothers spent most of his time discussing the eight topics on his slide titled "A New Reality: Global Dimensions Affect DoD S&T". The eight topics were:
    - i. Pace of Technology [Change]
    - ii. Rise of the Commons (seas, air, space, etc.)
    - iii. Expanding Global Knowledge Base
    - iv. Information Agility
    - v. Mass Collaboration
    - vi. Economic and S&T Mega-Trends
    - vii. Technology Commercialization
    - viii. Black Swan Syndrome [events that are disruptive/have major effects, are unpredictable to the observer, and after the fact are often inappropriately rationalized with benefit of hindsight, *Wikipedia*]
  - b. Dr. Brothers also briefly talked about the seven DoD S&T Priorities for the FY13 budget year, which can be found on pages 4-5 of the Honorable Zachary Lemnios' FY13 budget congressional testimony given 29 Feb 2012 ([http://www.defenseinnovationmarketplace.mil/resources/Lemnios\\_Testimony\\_2013.pdf](http://www.defenseinnovationmarketplace.mil/resources/Lemnios_Testimony_2013.pdf)). Those seven priorities are, in order presented in the FY13 congressional testimony:
    - i. Cyber Science and Technology
    - ii. Electronic Warfare / Electronic Protection (EW/EP)
    - iii. Data-to-Decisions
    - iv. Engineered Resilient Systems
    - v. Counter Weapons of Mass Destruction
    - vi. Autonomy
    - vii. Human SystemsDr. Brothers focused on Human Systems as an example. He stated that sometimes the human integration or the human part of the system is an afterthought and last to be designed, and that needs to change. He also mentioned that intellectual property needs to be leveraged better through improved awareness and commercialization.

- c. Dr. Brothers ended his remarks by acknowledging difficulties in obtaining IR&D funding and the challenges of quality government-industry communications. He specifically asked the audience for feedback on whether government roadmaps provide useful information to industry and how to better use/leverage government laboratories.
3. Remarks by Col McFarland, head of the DoD IR&D Program and Military Assistant to Mr. Al Shaffer, Acting ASD(R&E), 1030-1100. His slide presentation was titled "Reinvigorating Industry Independent Research & Development".
  - a. The topics he covered were:
    - i. Increasing Effectiveness of IR&D for Industry and DoD
    - ii. Better Buying Power (BBP) 1.0
    - iii. Better Buying Power 2.0
    - iv. How are we getting there?
    - v. Industry Feedback
  - b. The current "reinvigoration" of Industry IR&D began under BBP 1.0 with the establishment of the unclassified Defense Innovation Marketplace (DIM) web site (<http://www.defenseinnovationmarketplace.mil/index.html>) in November 2011. The effort continues under BBP 2.0. The major goal is to increase government-industry communication by providing a web site that helps industry better understand what DoD wants and gives DoD visibility on what industry is developing. He also mentioned that IR&D reporting for major projects is now required by the DoD Federal Acquisition Regulation Supplement (DFARS), which is provided on the web site. The DIM site contains three major areas:
    - i. Resources for Industry, which is subdivided into two areas called "Strategic S&T Overview" and "Doing Business with DoD". "Strategic S&T Overview" contains official government roadmaps, testimony, and other planning documents by DoD Components. "Doing Business with DoD" contains information on funding opportunities, Small Business Innovation Research, Rapid Innovation Funding, Requests for Proposal/Information, and other business-related topics.
    - ii. Submit IR&D Data, a portal for industry to submit unclassified IR&D project data. It is not yet fully operational.
    - iii. Resources for DoD, a portal for vetted government employees only (no contractors) to search the IR&D database by project, company, or key words. It contains proprietary information so access and security are major concerns. One key user may be the rapid fielding offices so they can see what industry projects might possibly meet their needs.
  - c. The site contains a Frequently Asked Questions (FAQ) tab that addresses topics such as submitting data, searching for data, protecting data, and potential uses for the data.
4. Dr. Brothers briefly discussed STEM challenges.
  - a. He stated that DoD needs to do a better job telling people about the diversity of S&T and national security problems that DoD is trying to solve to entice quality people to work in the DoD S&T/R&D community. He used the Defense Microelectronics Agency as an example.
  - b. He also briefly discussed his thoughts on transdisciplinary education, which is different than multi-disciplinary education.
5. The Q&A session took the remaining 60 minutes of the schedule. Some audience members just made comments while some also asked questions. A synopsis follows.
  - a. An industry person stated the need for better synergy between government and industry. He said the Defense Innovation Marketplace (DIM) site does a good job allowing DoD

visibility into industry IR&D but industry needs better (more detailed) information from DoD on what DoD needs.

- b. Old (20+ years ago) formal IR&D reviews by DoD allowed lower-level engineers to talk with each other and were a good, productive means of coordination and communication in the eyes of the government employee who asked this question. He asked about the potential to re-instate on-site reviews but I didn't catch the answer; I assume this is a non-starter in today's budget and legislative climate.
- c. An industry person stated the need for more detail on the seven DoD S&T Priorities than just a static PowerPoint presentation posted on a web site. He wanted more dialogue such as a conference session or at least a video presentation about each one.
- d. Several industry people stated that DoD participation in conferences is very valuable to them to enable face-to-face dialogue. The current conference travel restrictions on government personnel are precluding much valuable government-industry communication. Valuable communication includes government presentation of papers.
- e. An industry person stated that Industry profitability should also be a topic on Dr. Brothers' "New Reality" chart. Smaller businesses need to show a return on investment within 3-5 years, not the 10-15-year period of larger DoD systems. However, two other industry people whose companies are employee-owned, not traded on the stock market, stated their concern was more about "covering their employees" with continuing work, not high profitability, so as to keep quality personnel on staff doing meaningful work to avoid layoffs or employees being hired away by the commercial sector.
- f. A Department of State employee asked how other government agency employees can obtain access to the "Resources for DoD" portion of the web site since access requires a DoD CAC and e-mail address. Answer was for the person to submit a request for access on the site so that the request can be properly adjudicated.
- g. Two industry people discussed challenges in determining where their IR&D investments might be used.
  - i. One commented about communication challenges for 6.2 and 6.3 S&T efforts. He stated that government roadmaps don't adequately provide enough detail on where a technology investment might end up (i.e., a program) so that industry can connect with the government program managers (who have the money) to incorporate their IR&D investment in their programs.
  - ii. Another industry person stated that the Acquisition strategy/approach/model selected by the DoD influences the IR&D engineering development in terms of on-ramps for their investments in programs, and that there is lack of visibility in the Acquisition models for Industry's IR&D investments.
- h. Three comments dealt with Technology Readiness Levels (TRLs).
  - i. An industry person stated that there is still a gap in funding transition. Labs typically fund to TRL 5 but Acquisition programs don't want to incorporate a technology below TRL 6. There is a need for transition funding, but that is very hard for a small company to do. If a small company has a useful technology but doesn't want to sell the company to a major prime, the major prime may freeze them out.
  - ii. Another industry person stated the need to add integration readiness of TRLs to the metrics used on the DIM site.
  - iii. Another industry person added that TRLs should also be measured by cost, schedule, and integration metrics.
- i. An industry person emphasized the importance of transdisciplinary education. He stated that of the old "3 R's", only one (arithmetic) dealt with STEM; the other two (reading and

- writing) were about communication, which he sees as a challenge with recent college graduates; they have good ideas but sometimes can't effectively communicate them.
- j. An industry person emphasized Dr. Brothers' earlier point about User innovation and up-front involvement to improve the usefulness of the end product to the User and to show the User up-front what is feasible for the design, not just what the designer thinks the User might like or want/need.
  - k. An industry person discussed the need to focus S&T Priorities on subsystems below the system level of the Prime contractors because most joint capabilities are at the subsystem, not the system, level. He gave the Joint Light Tactical Vehicle (JLTV) program as an example of bad metrics at the system level.
  - l. A person (didn't catch if industry or govt) stated a challenge for industry is that government labs are sometimes protective of their information because of their potential for patents and need for secrecy, and that this impedes the dialogue with industry.
  - m. An industry person noted a challenge between the government S&T side encouraging IR&D investments by industry while the Procurement side of government wants more data rights to potentially share with competitors. There was some discussion of the FY11 National Defense Authorization Act (NDAA) being changed in the FY12 NDAA to clarify this but I didn't catch the details.
6. Besides the contact information on the DIM web site, Col McFarland provided his office e-mail address for use in providing further comments or asking additional questions. His e-mail address is [Charles.mcfarland@osd.mil](mailto:Charles.mcfarland@osd.mil). Slides presented by Col McFarland, which were already cleared for public release, are supposed to be e-mailed by NDIA to audience members in the near future.