US ARMY RDECOM

DoD R&D Laboratories –

Making Warfighter Materiel Solutions Better

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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AGENDA

- Learning at Conferences
- Suggestions on Working with DoD Labs
- Sample DoD Lab
  - ECBC: Core Competencies

Why do People Attend Conferences?

Recent research suggests:

- Learning
- Networking
- Meeting new people
- Face-to-face meetings
- Booths with new products

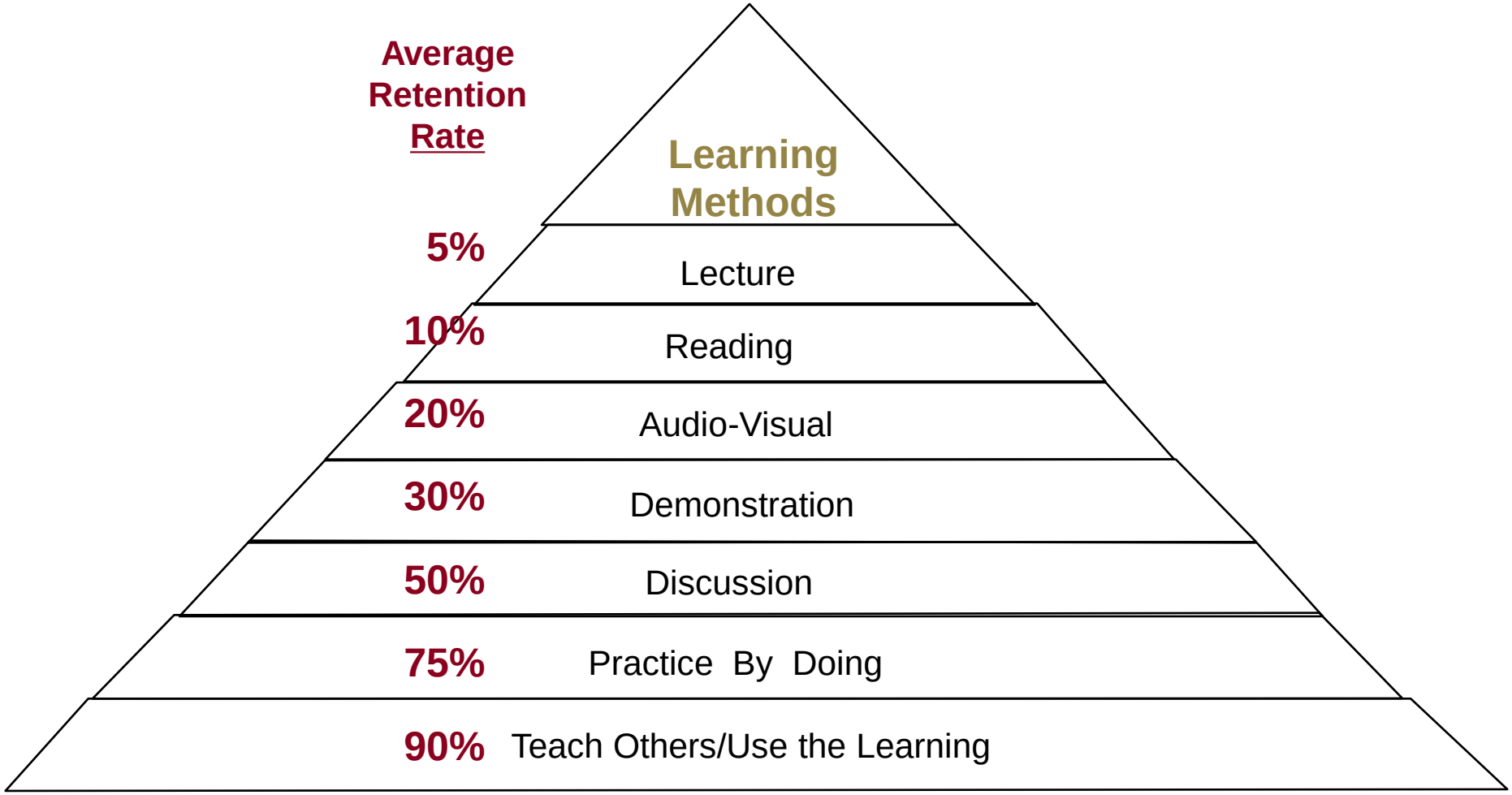
#1 Reason to go to Conference:
Partying & Schmoozing?

What Makes Good Conferences?

Recent research suggests:

- Enable as much active participation of as many participants as possible
- Facilitate personal networking
- New and exciting information that can't be presented elsewhere differently

How do Adults Learn?



Learning at Conferences

- Facilitate personal networking:

  Meet the person next to you and ask . . .

  Where are you from and why the heck are you here????

Learning at Conferences

- Enable as much active participation of as many participants as possible

  - Anybody meet someone with an interesting reason for being here?

  - Any other DoD lab people here?

Suggestions on Working with DoD Lab

- Identify problem to be solved or questions to answer
- Find DoD lab core competencies
- Ask lab to identify other partners that can “augment” core competency for best solution

What's a Lab Core Competency?

- DoD lab core competencies typically based on "what end products are required" to succeed in the warfighting mission
- Can be research, engineering, operations but fundamentally supports warfighting products and missions

DoD Laboratories

DoD Laboratories offer unique facilities coupled with military focus to provide Warfighters the best solutions to accomplish their mission

67 DoD Laboratories:

1. **Aeromedical Research Laboratory**
   Fort Rucker, AL
2. **Armament Research, Development, and Engineering Center**
   Picatinny Arsenal, NJ
3. **Communications and Electronics Research, Development, and Engineering Center , APG, MD**
4. **Army Material Systems Analysis Activity**
   Aberdeen Proving Ground, MD
5. **Army Geotechnical and Structures Lab**
   Vicksburg, MS
6. **Army Construction and Engineering Research Lab**
   Champaign, IL

67 DoD Labs (cont'd)

7. Army Cold Regions Research and Engineering Lab
   Hanover, NH
8. Army Coastal and Hydraulics Lab
   Vicksburg, MS
9. Army Information Technology Lab
   Vicksburg, MS
10. Army Environmental Lab
    Vicksburg, MS
11. Aeroflightdynamics Directorate
    Moffett Field, CA
12. Army Sustainment Command
    Rock Island, IL
13. Army Research Institute for the Behavioral and Social Sciences
    Arlington, VA

67 DoD Labs (cont'd)

14. Army Research Institute of Environmental Medicine
    Natick, MA
15. Army Research Laboratory
    Adelphi, MD
16. ARL - Army Research Office
    Durham, NC
17. Aviation and Missile Research, Development, and Engineering Center
    Redstone Arsenal, AL
18. Edgewood Chemical Biological Center
    Aberdeen Proving Ground, MD
19. Engineer Research and Development Center
    Vicksburg, MS

67 DoD Labs (cont'd)

20. Army Institute of Surgical Research
    Fort Sam Houston, TX
21. Army Medical Research Institute of Chemical Defense
    Aberdeen Proving Ground, MD
22. Army Medical Research Institute of Infectious Diseases
    Fort Detrick, MD
23. Natick Soldier Research, Development, and Engineering Center
    Natick, MA
24. Simulation and Training Technology Center
    Orlando, FL
25. Space and Missile Defense Technical Center
    Huntsville, AL

67 DoD Labs (cont'd)

26. Tank Automotive Research, Development, and Engineering Center
    Warren, MI
27. Walter Reed Army Institute of Research
    Silver Spring, MD
28. Army Topographics Engineering Center
    Fort Belvoir, VA
29. Marine Corps Warfighting Laboratory
    MCB Quantico, VA
30. Naval Health Research Center
    San Diego, CA
31. Naval Medical Research Center
    Silver Spring, MD
32. Naval Research Laboratory
    Washington, DC

67 DoD Labs (cont'd)

33. Naval Undersea Warfare Center - Newport Division
    Newport, RI
34. Naval Undersea Warfare Center - Keyport Division
    Keyport, WA
35. Space and Naval Warfare Systems Center - Pacific
    San Diego, CA
36. Space and Naval Warfare Systems Center - Atlantic
    Charleston, SC
37. SPAWAR Space Field Activity
    Chantilly, VA
38. Naval Air Warfare Center Aircraft Division - Patuxent River
    Patuxent River, MD
39. Naval Air Warfare Center - Training Systems Division
    Orlando, FL
40. Naval Air Warfare Center Aircraft Division - Lakehurst
    Lakehurst, NJ

67 DoD Labs (cont'd)

41. Naval Air Warfare Center Weapons Division - China Lake
    China Lake, CA
42. Naval Air Warfare Center Weapons Division - Point Mugu
    Point Mugu, CA
43. Naval Surface Warfare Center- Carderock Division
    Carderock, MD
44. Naval Surface Warfare Center- Dahlgren Division
    Dahlgren, VA
45. Naval Surface Warfare Center- Pt. Hueneme Division
    Port Hueneme, CA
46. Naval Surface Warfare Center- Indian Head Division
    Indian Head, MD
47. Naval Surface Warfare Center- Corona Division
    Corona, CA
48. Naval Surface Warfare Center- Panama Division
    Panama City, FL

67 DoD Labs (cont'd)

49. Naval Surface Warfare Center- Crane Division
    Crane, IN
50. Naval Surface Warfare Center- EODTechDiv
    Indian Head, MD
51. Naval Surface Warfare Center- Philadelphia
    Philadelphia, PA
52. Naval Submarine Medical Research Laboratory
    Groton, CT
53. Naval Aerospace Medical Research Laboratory
    Pensacola, FL
54. Naval Health Research Center - Environmental Health Effects Laboratory
    Wright-Patterson AFB, OH
55. Air Force Research Laboratory
    Wright-Patterson AFB, OH

67 DoD Labs (cont'd)

56. Air Force Office of Scientific Research
    Arlington, VA
57. Air Vehicles Directorate
    Wright-Patterson AFB, OH
58. AFRL - Directed Energy Directorate
    Kirtland AFB, NM
59. AFRL - Human Effectiveness Directorate
    Wright-Patterson AFB, OH
60. AFRL - Information Directorate
    Rome, NY
61. AFRL - Materials and Manufacturing Directorate
    Wright-Patterson AFB, OH

67 DoD Labs (cont'd)

62. AFRL - Munitions Directorate
    Eglin AFB, FL
63. ARFL - Propulsion Directorate
    Wright-Patterson AFB, OH
64. AFRL - Sensors Directorate
    Wright-Patterson AFB, OH
65. AFRL - Space Vehicles Directorate
    Kirtland AFB, NM
66. Armed Forces Radiobiology Research Institute
    Bethesda, MD

ECBC – CB Research Critical Core Capabilities & Facilities

1. **Aerosol Physics**
   - Measure and develop models to predict aerosol particle transport phenomena
2. **CB Agent Spectroscopy/Algorithm Development**
   - Research the detection of CB materials –point & standoff
3. **Chemistry & Bioscience of CB Warfare**
   - Fully understand agent properties (persistence, environmental fate/effect, etc) & how to decontaminate
4. **Emerging threat Science/Technology/Testing**
   - Research emerging toxics threats and challenge COTS/GOTs equipment – suggest improvements


Aerosol Test Facilities


Standoff Detection Technology Evaluation Facility


Advanced Chemistry Laboratory


Phase II of ACL – Third Wing


Bioengineering Facility

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ECBC – CB Research Critical Core Capabilities & Facilities

5. **Filtration Sciences**
   - Determine more efficient means to protect from toxic airborne respiratory hazards
6. **Inhalation Toxicology**
   - Measure and model human toxicity levels to est. equipment performance criteria
7. **Org for the Prohibition of Chemical Weapons (OPCW) Lab**
   - 1 of 2 labs in U.S. allowed to identify chemical compounds prohibited by the CWC
8. **Single Small-Scale Facility**
   - Only U.S. declared facility allowed to produce CW agents for DoD protective purposes.


McNamara Life Sciences Bldg.


Forensic Analytical Center


Single Small-Scale Facility

ECBC - Facts

- Nations principal R&D resource for non-medical CB Defense
- Hazardous operations incident rate (1.17) falls below the industry average (2.5)
- $1.8B specialized and unique laboratories
- 1.8 M ft^2 of lab and chamber space
- 435 certified chemical surety hoods
- 68 BSL-2 and BSL-3 hoods
- Chemical Transfer Facility (CTF) was designated as the only U.S. declared Single Small Scale Facility under the CWC
- The only source of CASARM standards
- Large Scale Secure Cryogenic Storage and Archiving
- Technology Transfer – hundreds of agreements in 2010 (CRADAs, TSAs, OGAs)

ECBC – Infrastructure Benefits

- **Specialized & unique labs can adapt to unique customer needs**
- **Single Small Scale Facility ensures agents are available for customer testing**
- **CASARM standards ensure unknowns can be identified accurately and test agent materials are of the correct type**
- **Ability to test and assist to improve COTS /GOTS**
- **Possesses unique infrastructure and knowledge not maintained by commercial industry**

The following are indirectly related to infrastructure :

- **High lab safety rate ensures customer projects are completed on time & in a safe manner**
- **Collaboration with Intel Community ensures tests are conducted and models created against real relevant threats**
- **Broad experience establishing CRADAs, TSAs, OGAs, MOUs, etc.**

Learning at Conferences

- Be careful who you listen to:
  - ***An amazing invention but who would ever want to use it?*** (President Hayes on invention of telephone)
  - ***There is no reason for any individual to have a computer in his home.*** (Ken Olsen, co-founder of Digital Equipment Corp)
  - ***The truth is that no database will ever replace your daily newspaper and no computer network will change the way government works*** (Newsweek Magazine article, 27 Feb 1995)