S & T For National Security

- In 2008 DDR&E asked JASON to recommend how DoD Basic (6.1) research should be structured best to meet the future

- Tasking included looking at the program, people, and organization

- Steve Koonin directed the study

- JASON did not collect systematic data but talked with people at DDR&E and the services and read the Welch report.

- The report was based mostly on decades of experience of 25 JASONs with academia and DoD 6.1 research
Rationale for DoD Basic Research

- Some fields are unique to DoD
- Other fields yield benefits for wise DoD support
- Basic researchers are needed to identify & utilize best foreign basic research

- Two fallacies
  - "Why invest when Net Present Value is so low?"
  - "Let someone else pay & we’ll reap the rewards."
Program Observations

- Important program aspects are “broken”
- Significant basic (6.1) funding supports applied work, using DoD’s definitions
- Work is often good but yields only incremental advances
- Shift in emphasis done by the services, with no critical review or redirection by DDR&E
- Common management of 6.1 – 6.3 is bad practice
Program Recommendations

- Insure 6.1 activities conform to 6.1 definition
- Focus on people & areas, not projects
- Shift funding to ‘core’ programs from DRIs
- Eliminate large fluctuations in 6.1 funding
- Judge 6.1 program managers by quality and number of discoveries rather than solely by obvious ‘transitions’
Personnel Observations

- People are paramount, but
- Within DoD
  - S&T is not a path to high rank in the services
  - Program managers lack time & incentive to keep current with some of the best science
- Within academia
  - DoD is losing contact with large fraction of the best scientists
  - DoD is not adequately developing S&T pipeline
    - 150 NDSEG vs 1000 NSF fellowships per year
Personnel Recommendations

- Facilitate advanced S&T degrees for line officers & establish research corps in services
- DoD labs should have some researchers closely coupled to broader communities
- Better couple supported faculty to DoD problems
- Expand the new National Security Faculty Fellowship program
Organization Observations

- DoD is not effectively coordinating & overseeing basic research across the dept.
  - DDR&E is decoupled from the “cash flow” in formulating budgets & spending funds
- Increased bureaucracy has diverted program managers from scientific program oversight
- DoE labs have similar functions to DoD labs but keep a higher basic research profile
Organization Recommendations

- Continue services running 6.1 research, but protect 6.1 funds at OSD level
- Strengthen DDR&E oversight of 6.1
  - Line authority over service 6.1, including reviewing budget requests & reprogramming appropriated funds
- Create a 6.1 advisory committee reporting to the USDATL