Fiscal Year 2015 President's Budget Request for the DoD Science & Technology Program

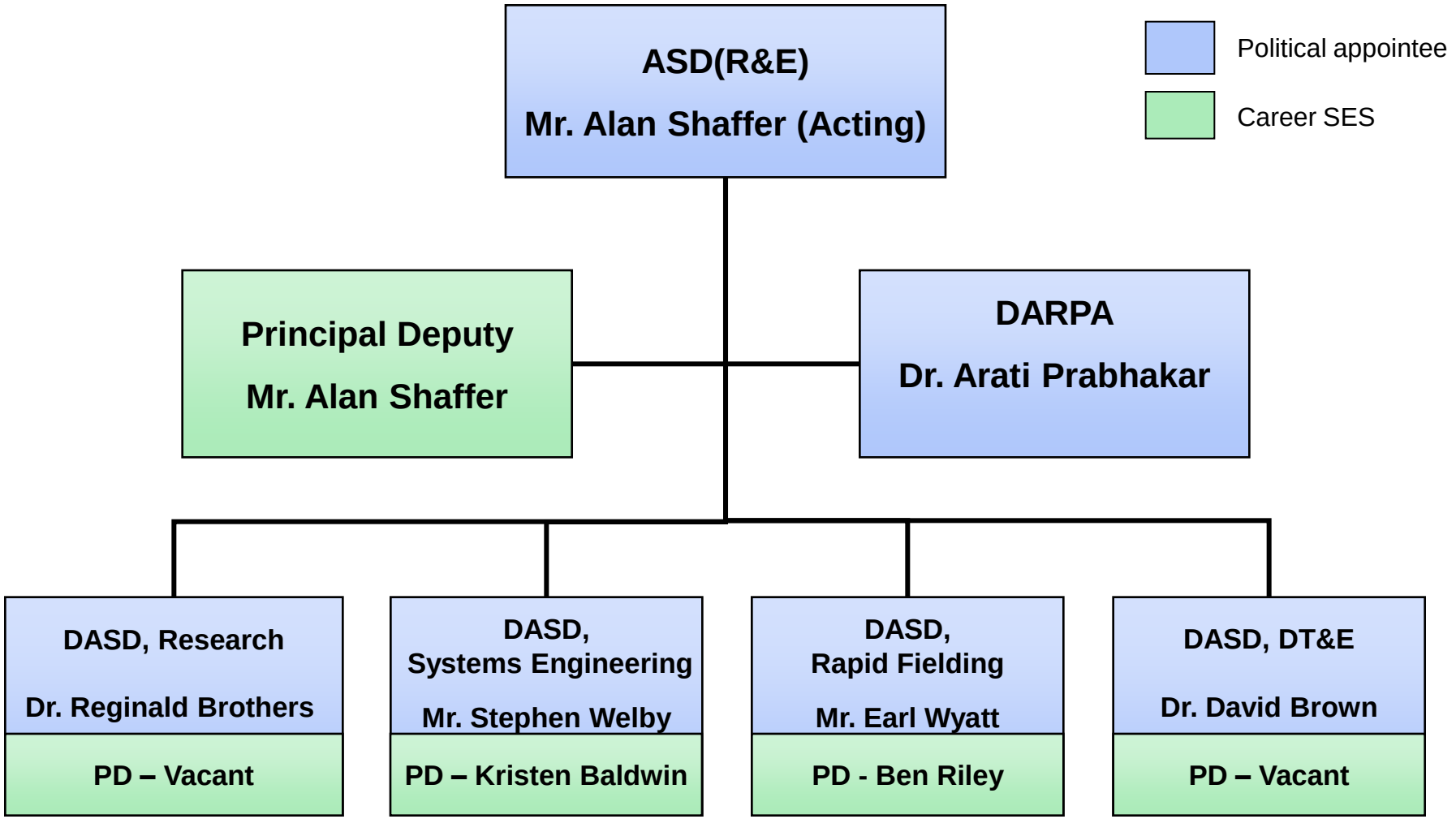
April 8, 2014

Mr. Bob Baker

Deputy Director, Plans & Programs,

Assistant Secretary of Defense (Research & Engineering)

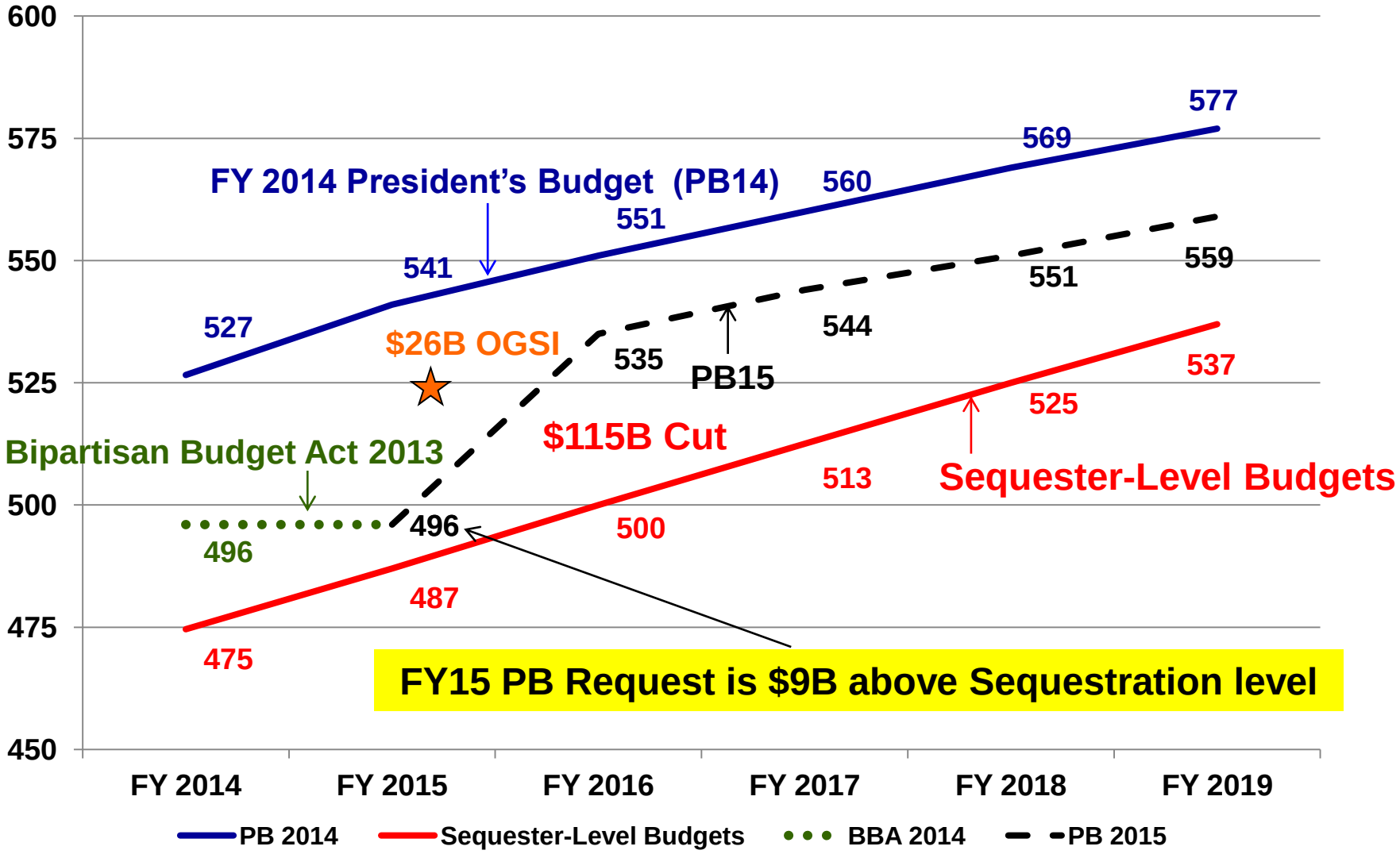
ASD(R&E) – Organization



Outline

- ***Guidance and Priorities***
- ***FY2015 S&T President's Budget Request***
- ***Historical Context***
- ***Reliance 21 & Communities of Interest (COIs)***

Defense Budget
- The Big Picture -



OGSI: Opportunity, Growth, and Security Initiative ($335M for S&T)

USD(AT&L) Priorities
Concern of Losing Technological Edge

Frank Kendall
USD (AT&L)
Mr. Kendall on the Department's Technological Edge, January 2014

- ***"I'm very concerned about eroding technological superiority"***
- **DoD's R&D spending declined 14% since 2009**
  - **We have to preserve future capability**

"We're in a cyclical downturn right now. It will end, and then there will be an upturn. The people who are prepared with products that we need or who have done the technology to build the products that we will need will be much better positioned when that upturn occurs."

Focus on Prototyping

More strategic project selection – greater emphasis on prototyping to address future threats

- **Provide a hedge against technical surprise**
- **Explore the realm of the possible without commitment to follow-on procurement**
- **Evaluate new concepts, guide new technology development, demonstrate new capability**
- **Sustain unique elements of the defense industrial base**
  - **Stimulate design teams to advance the state of the practice**
  - **Improve development methods and manufacturing**

FY 2015 OMB / OSTP S&T Priorities

- **DoD Passback, January 2014**
  - **DARPA:** develops new capabilities that ensure technological superiority (~$2.9B)
  - **Basic Research:** discovery of new scientific knowledge, to include training and development of the future S&T workforce (~$2.0B)
  - **Advanced Manufacturing:** supports the President's National Network Manufacturing Initiative and the National Economic Council's manufacturing goals (~$90M)
  - **Hypersonics:** supports national hypersonics requirements and capabilities (Protected DARPA and AF programs)
  - **Prototyping Activities:** reduces technical risk in acquisition programs and maintains workforce skills in design, systems engineering
  - **Autonomous Systems:** protected funding for Autonomous Research Pilot Initiative
  - **High Performance Computing:** Army continues to have a robust program (~$180M each year across FYDP)

Defense R&E Strategy

"The Department will make every effort to maintain an adequate industrial base and our investment in science and technology"

-SECDEF, January 2012 Strategic Guidance -

1. Mitigate new and emerging threat capabilities

- Cyber
- Space Capability
- Electronic Warfare
- Counter-WMD

2. Affordably enable new or extended capabilities in existing military systems

- Systems Engineering
- Prototyping
- Develop Test
- Power and Energy
- Modeling and Simulation
- Interoperability
- Open Systems

3. Develop technology surprise through science and engineering

- Autonomy
- Human Systems
- Hypersonics
- Data-to-Decisions
- Basic Research (Quantum)

Technology Needs

- Cyber / Electronic Warfare
- Engineering / M & S
- Capability Prototyping
- Protection & Sustainment
- Advanced Machine Intelligence
- Anti-Access/Area Denial

FY 2015 Investments to Meet S&T Priorities

- **Mitigate**
  - Project Power Despite Anti-access/Area-denial Challenges (~$2B)
  - Counter Weapons of Mass Destruction (~$1B)
  - Operate Effectively in Cyberspace/Space(~$900M)
  - Electronic Warfare (~$500M)
- **Affordability**
  - Advanced Manufacturing (~$90M – up 10%)
  - Prototyping (~$900M, includes BA4)
- **Surprise**
  - High-speed Kinetic Strike (~$300M)

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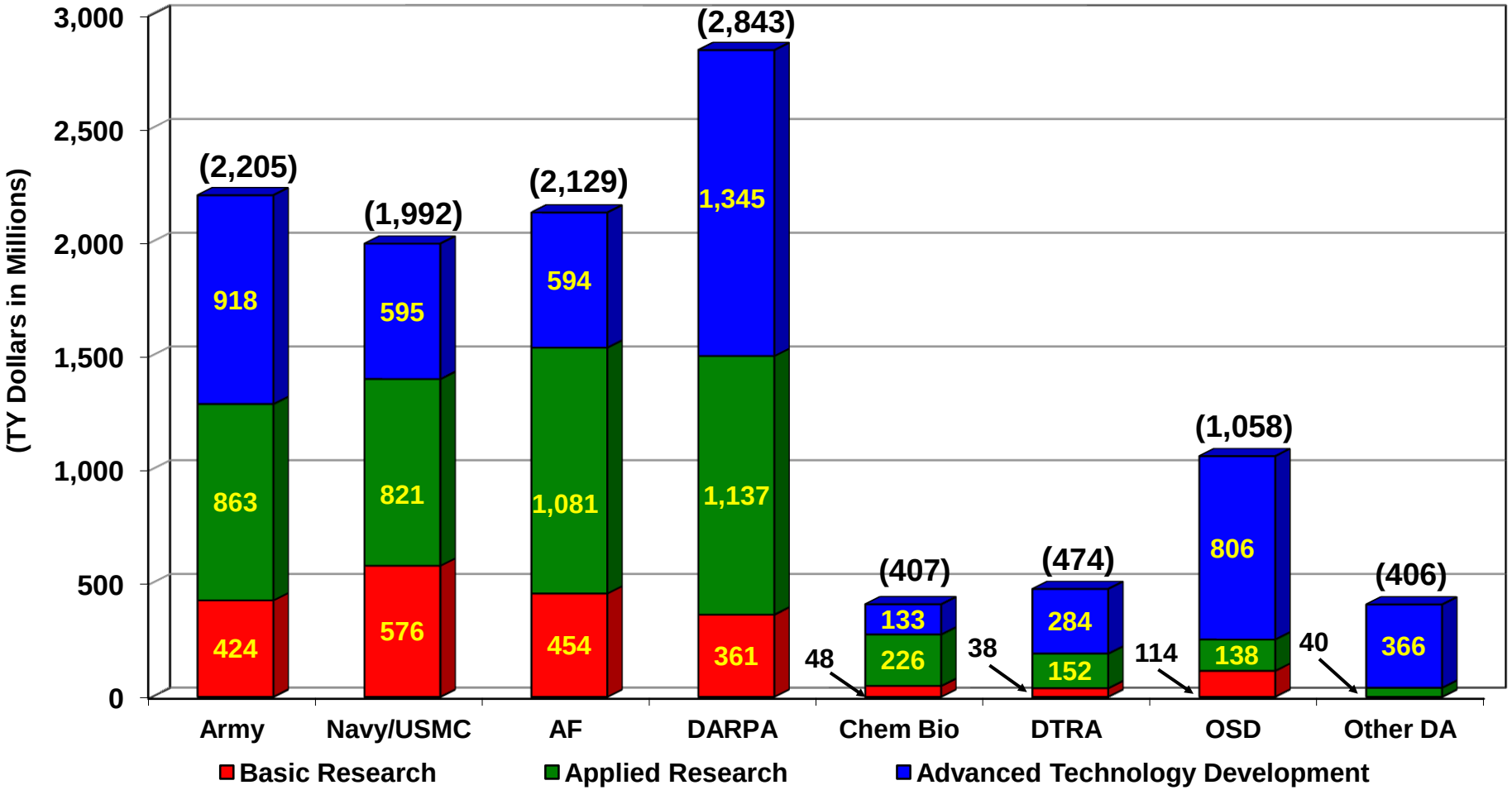
FY 2015 DoD S&T Budget Request

Total FY 2015 S&T request = $11.51B

Total FY 2014 S&T Request = $11.98B

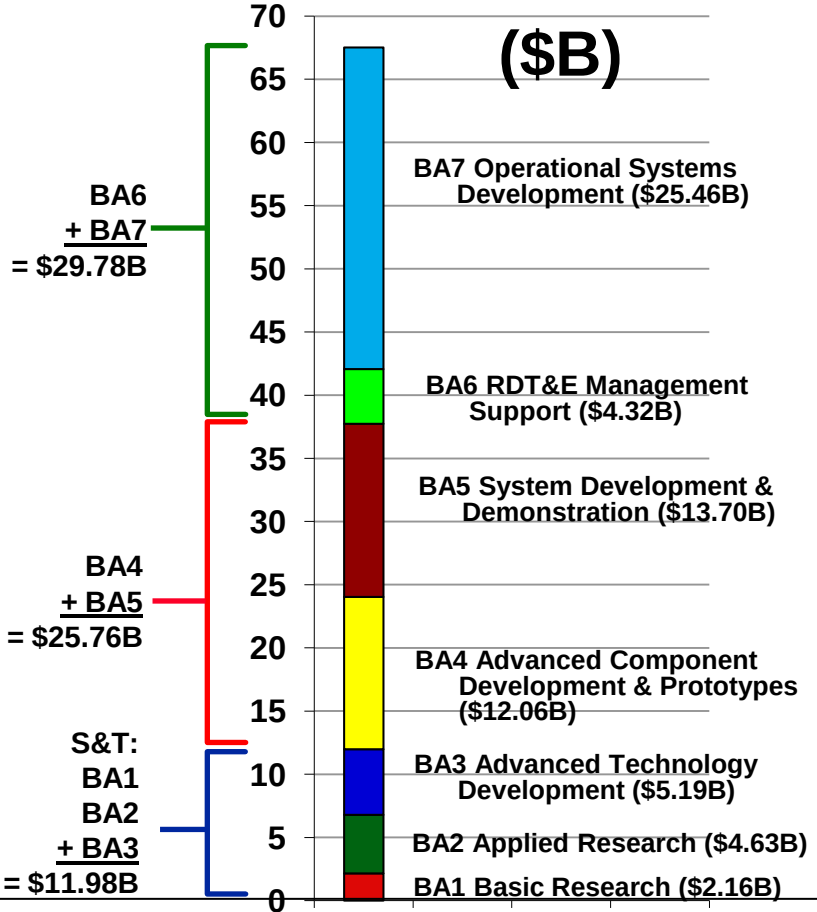
Army = 2,205 Navy = 2,033 AF = 2,270 DARPA = 2,793 ChemBio = 449 DTRA = 495 OSD = 1,147 Other DA = 591



DoD FY 14 & FY 15 RDT&E Budget Request Comparison

- in Then Year Dollars -

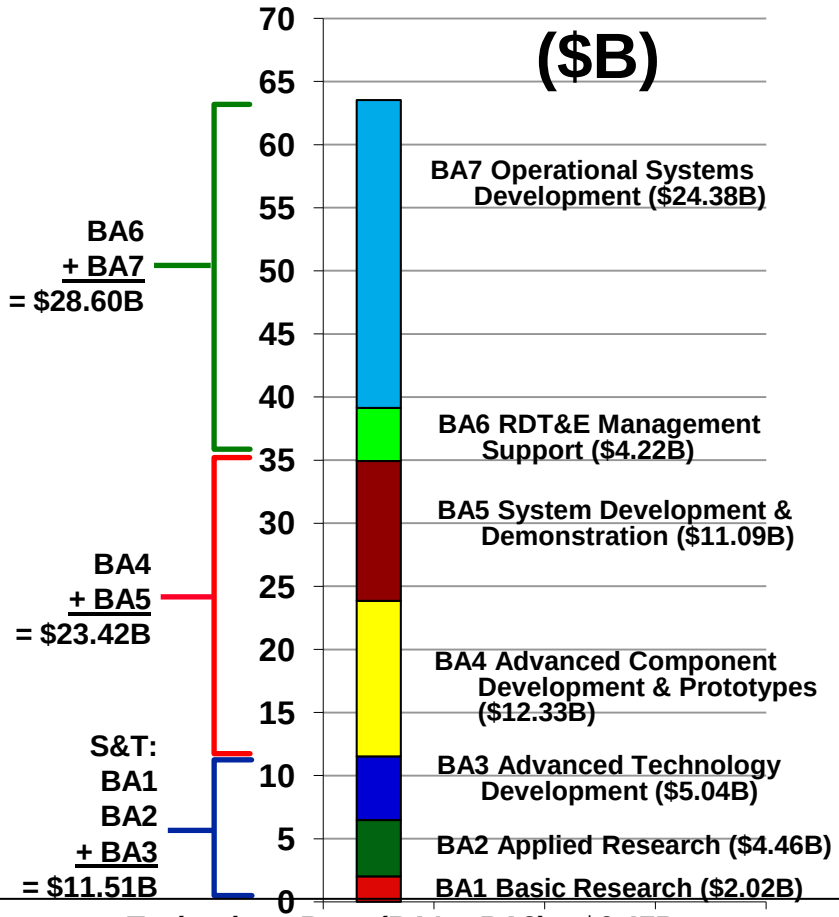
FY 14 RDT&E request = $67.52B
(Budget Activities 1-7)



Technology Base (BA1 + BA2) = $6.79B

PBR14 S&T is 17.8% of RDT&E

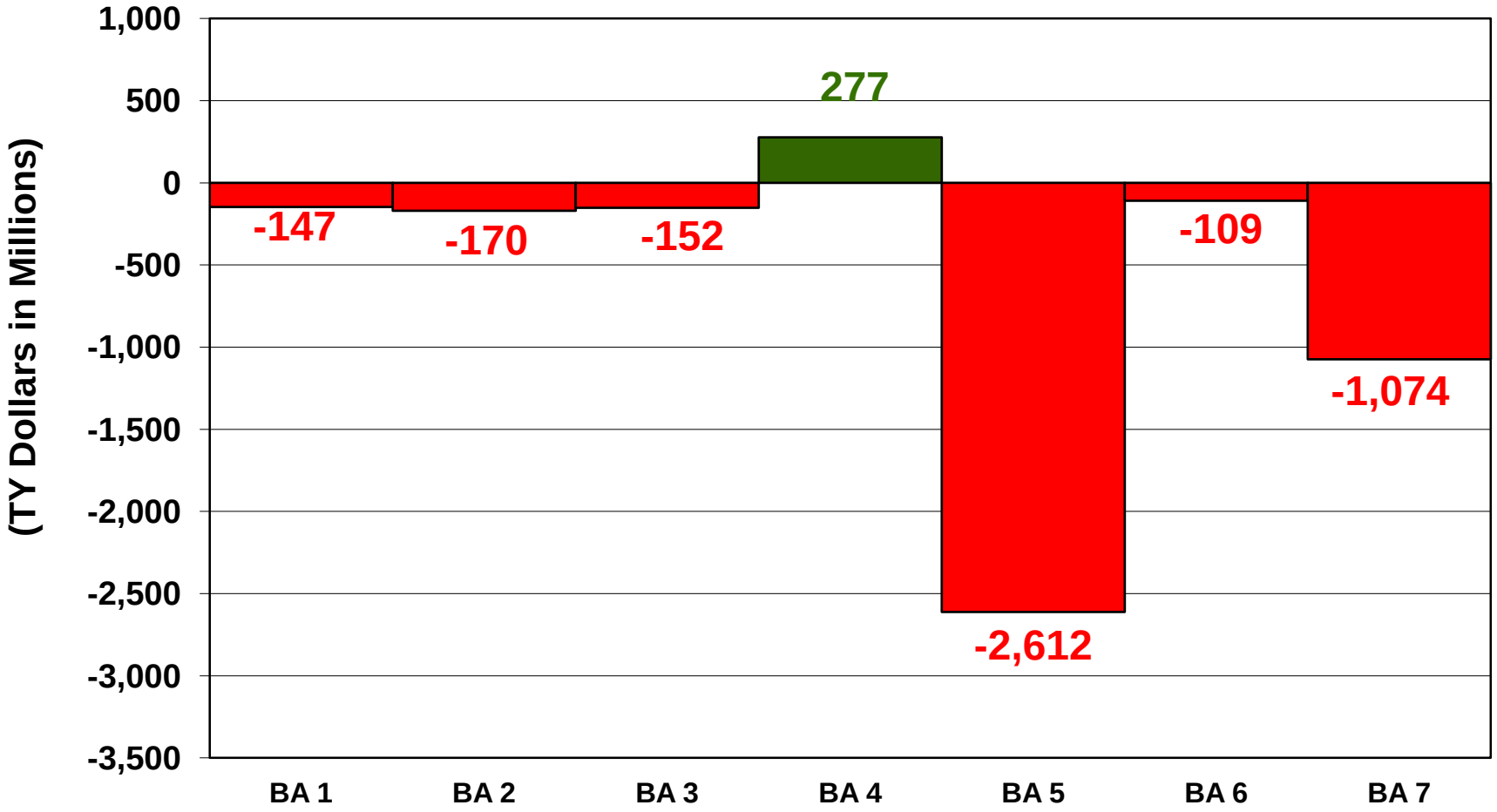
FY 15 RDT&E request = $63.53B
(Budget Activities 1-7)



Technology Base (BA1 + BA2) = $6.47B

PBR14 S&T is 18.1% of RDT&E

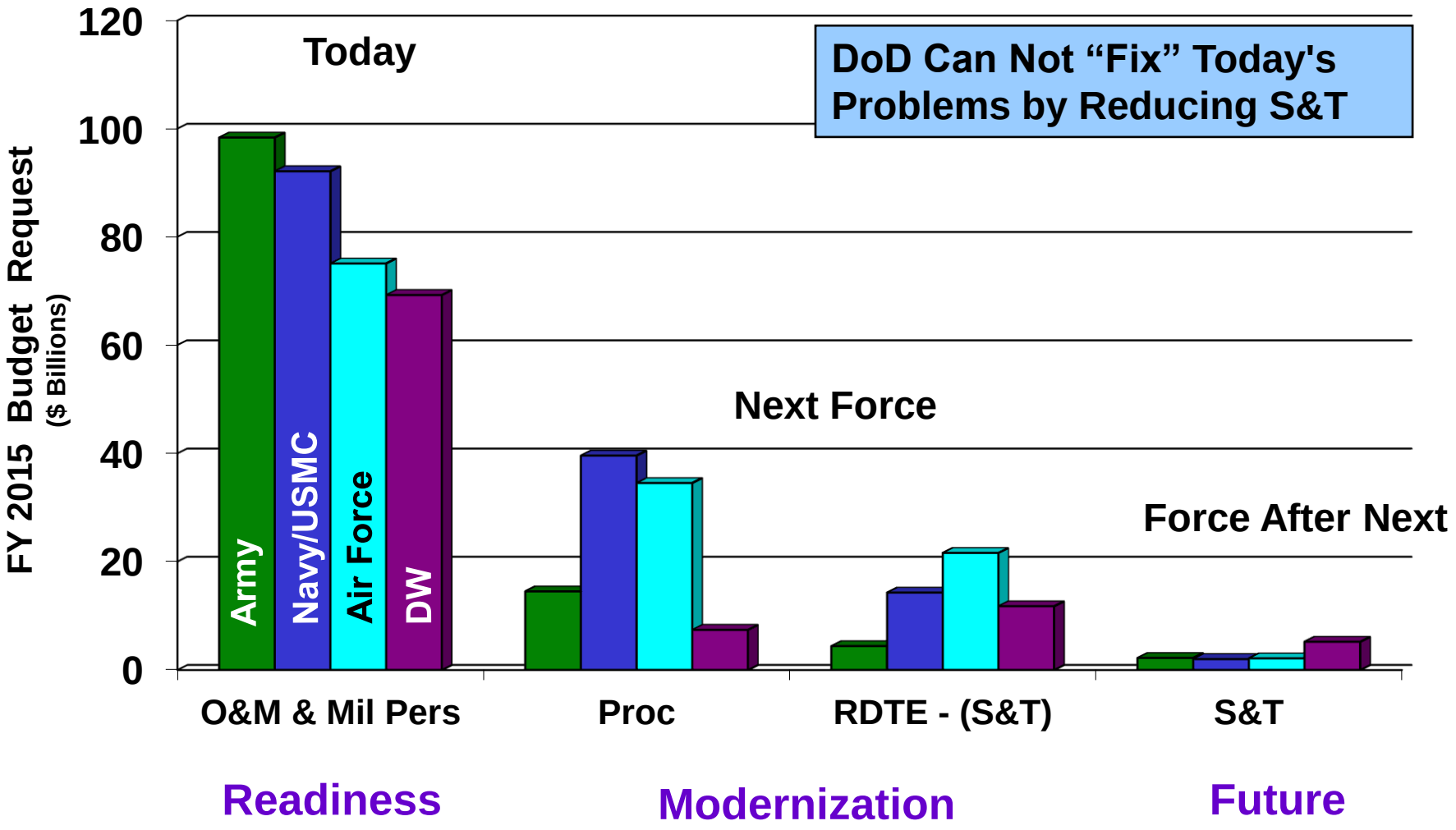
RDT&E Budget Request Overview
- FY 2014 and FY 2015 Comparison -



FY 2015 DoD R&E Budget Request Comparison

	PBR 2014	PBR 2015 (FY 14 CY $)	% Real Change from PBR 2014 (FY 14 CY $)
Basic Research (BA 1)	2,164	2,017 (1,982)	-8.41%
Applied Research (BA 2)	4,627	4,457 (4,378)	-5.38%
Advanced Technology Development (BA 3)	5,192	5,040 (4,951)	-4.64%
DoD S&T	**11,984**	**11,515 (11,311)**	**-5.61%**
Advanced Component Development and Prototypes (BA 4)	12,057	12,334 (12,116)	1.00%
DoD R&E (BAs 1 – 4)	**24,041**	**23,849 (23,427)**	**-2.87%**
DoD Topline	526,612	495,604 (486,841)	-7.55%

FY 2015 Technology Investment Compared to Other DoD Categories



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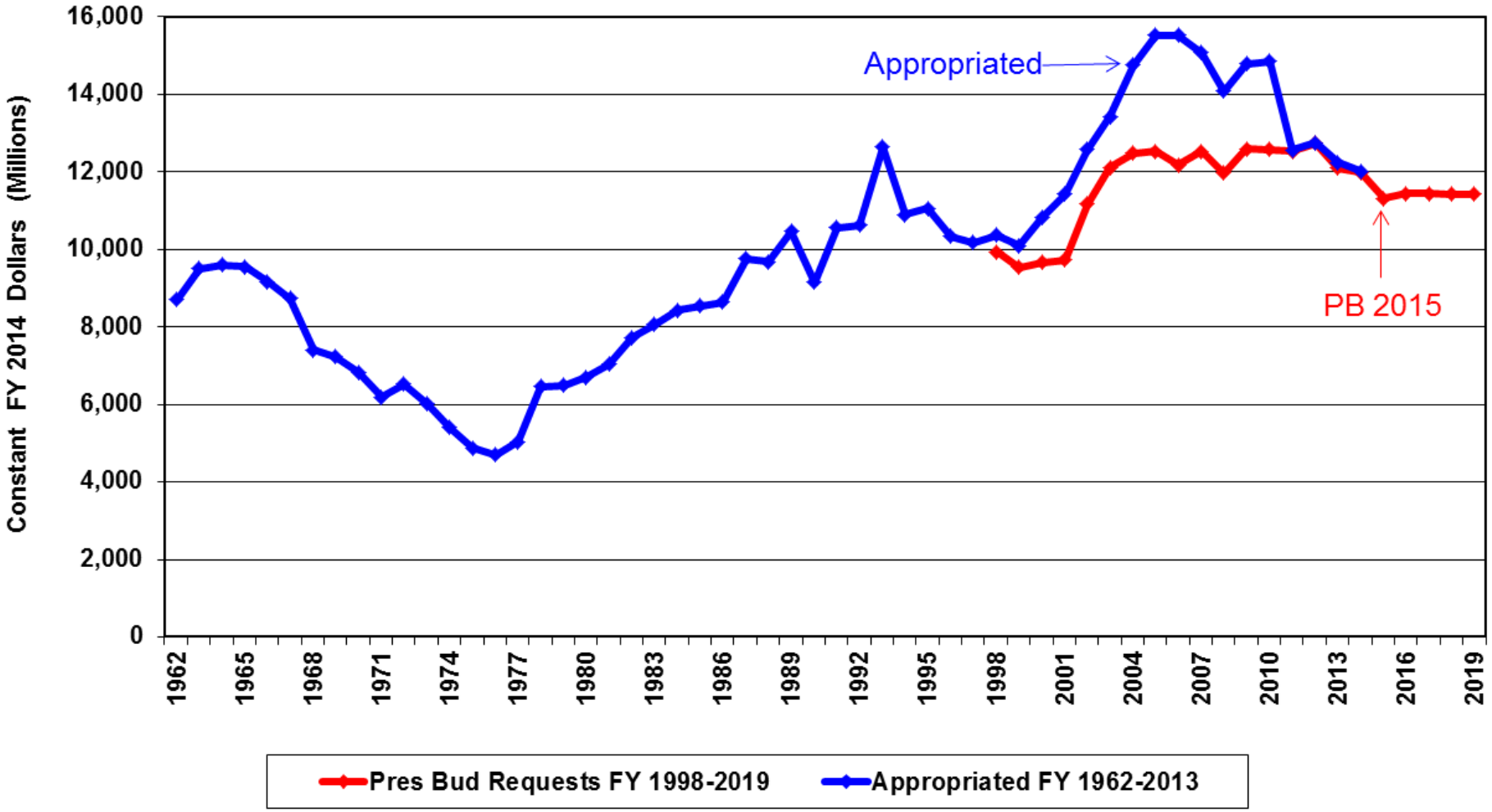
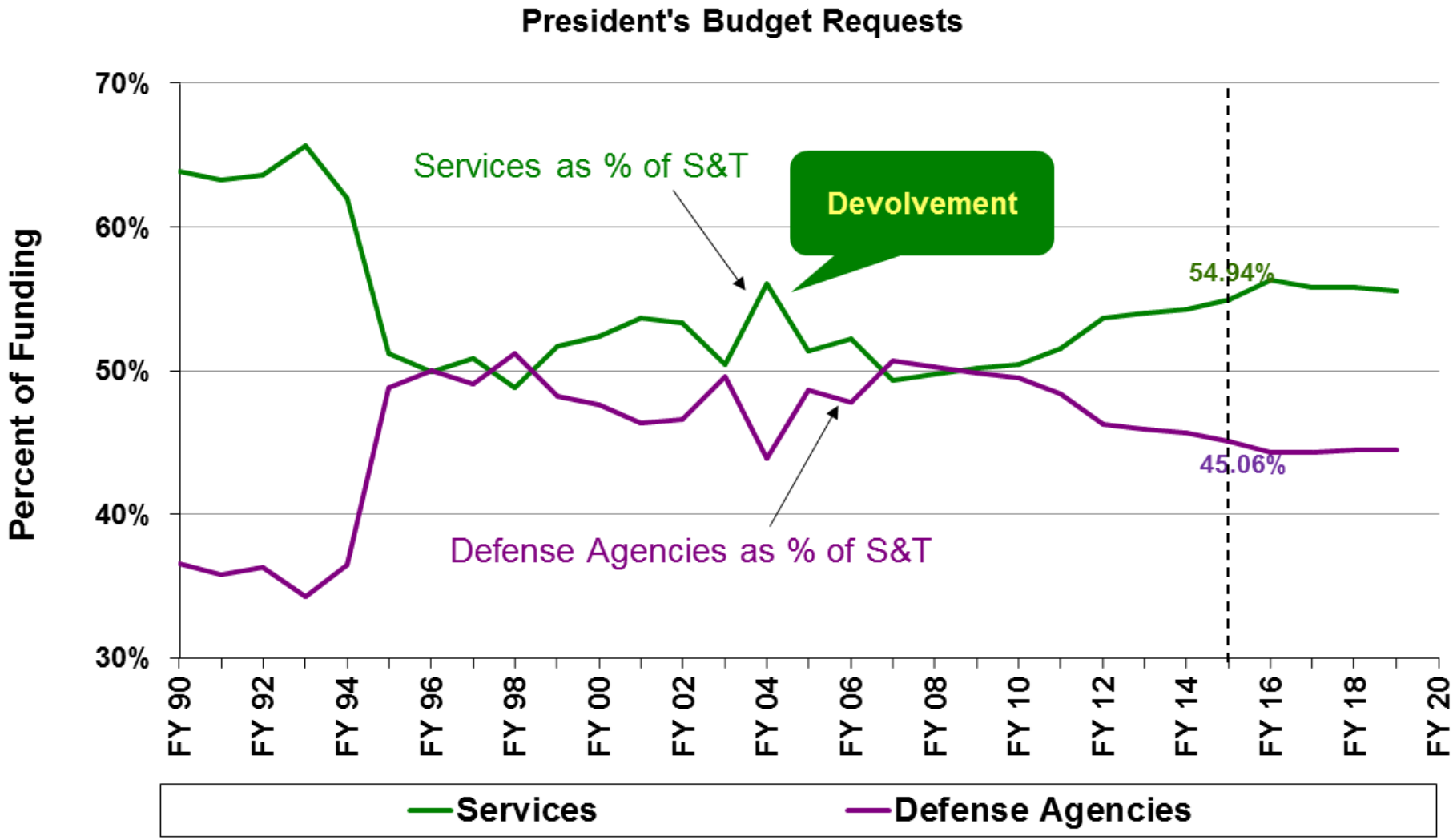
DoD S&T FUNDING: FY 1962-2019

(FY 1962-2013 Appropriated, FY 1998-2019 President's Budget Request)



DoD S&T Breakout

- Services and Defense Agencies as % of Total S&T -



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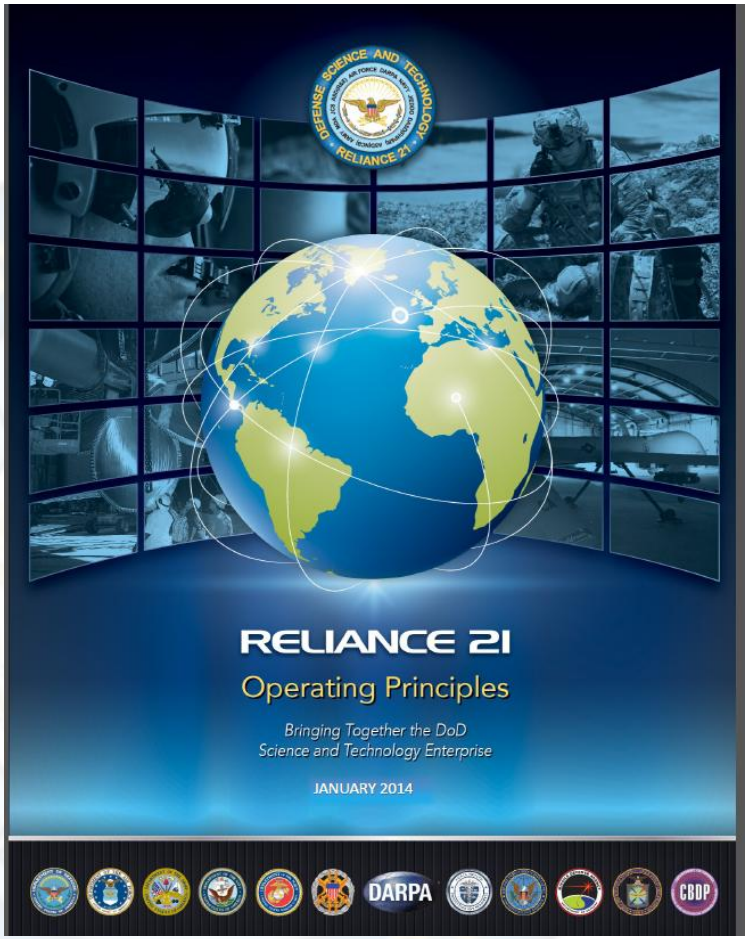
What is Reliance 21?

- **Reliance 21 is the overarching framework of the DoD's S&T joint planning and coordination process**
  - **Reliance 21 has roots that go back several decades, and has been continually renewed and refreshed**

- **An ecosystem of cross-cutting collaborative teams that enable information sharing, alignment of effort, coordination of priorities and support for the scientists and engineers across the Department**

- **Strengthens coordination and efficiency to ensure the utmost value from investments in science and technology**



Found at www.DefenseInnovationMarketplace.mil and www.acq.osd.mil/chieftechnologist/index.html

What are COIs?

1) COIs (Communities of Interest) are groups of scientists and engineers who are subject matter experts in specific cross-cutting technology areas where there is substantial investment across multiple Components

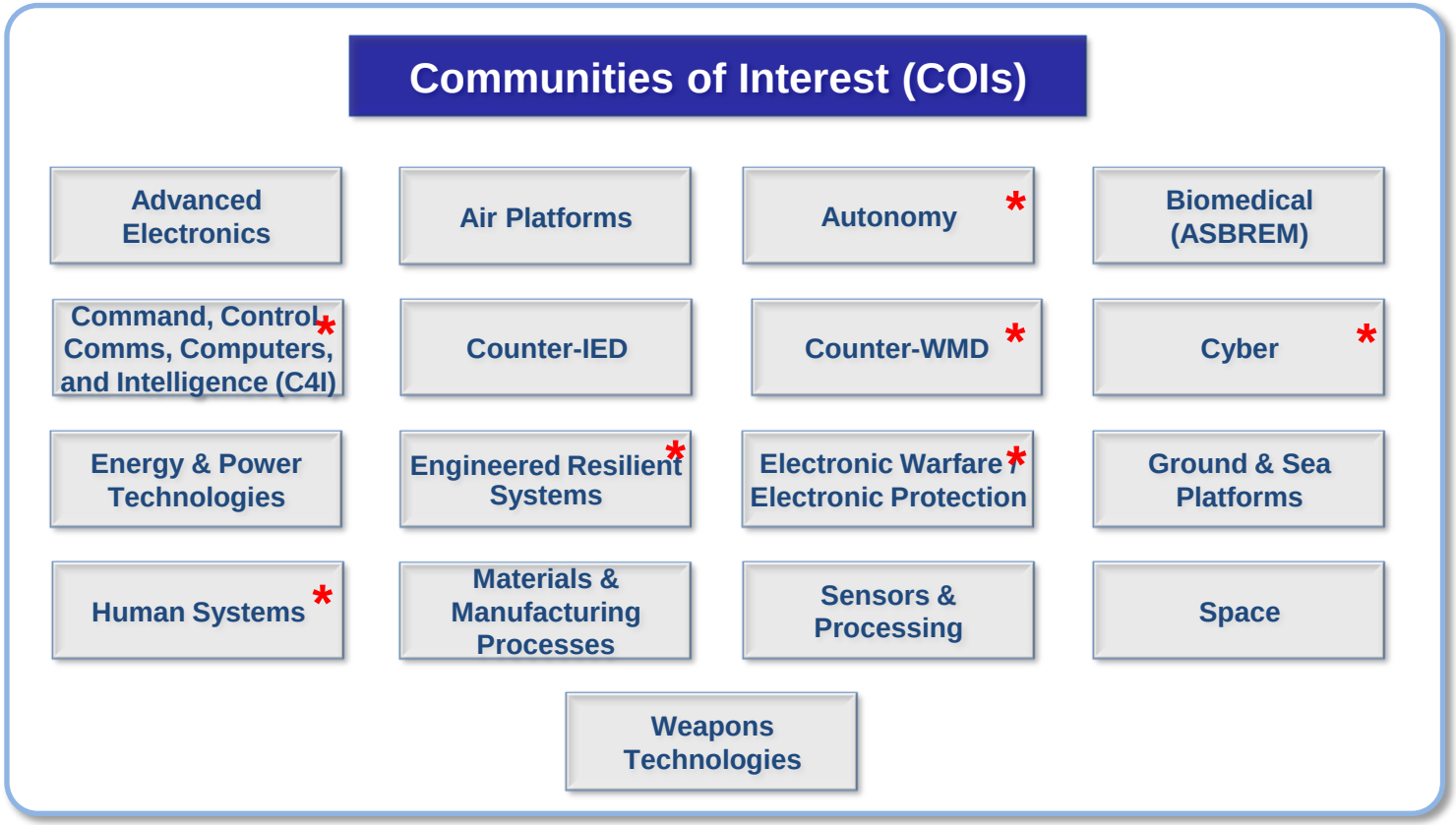
2) COIs were established in 2009 as a mechanism to encourage multi-agency coordination and collaboration in cross-cutting technology areas with broad multiple-Component investment.

3) COIs provide a forum for coordinating S&T strategies across the DoD, sharing new ideas, technical directions and technical opportunities, jointly planning programs, measuring technical progress, and reporting on the general state of health for specific technology areas

4) COIs are led by Steering Groups of senior technical leaders who take on a leadership role for their area
   - Build and implement strategic roadmaps
   - Empowered to identify gaps and issues, and make recommendations to the S&T ExCom
   - Identify lead / co-lead / follow relationships across the Components
   - Identify opportunities to leverage external investment and expertise

Communities of Interest

There are 17 COIs up and running, with many new Steering Group members, and significant participation from the Services



* *Denotes COIs that cover the DoD cross-cutting S&T Priorities (Data-to Decisions is found in C4I)*

Building COI Roadmaps

Strategic outlook, 10 to 15 years

- **What are technology opportunities / goals / objectives?**
- **What is military impact of meeting those technical targets?**
  - **Technical opportunities that will enable new missions or capability, or achieve some game changing level of performance**
- **What technical plans are in place, and where are the gaps?**
  - **When does it need to happen to make a difference?**
  - **What are recommended approaches to close gaps / deliver opportunities?**
- **What are the opportunities to leverage external investment / expertise?**
  - **Cross-Govt, Industry, Academia, and International**

Summary
--*Where We Are Today*--

- **FY 2015 S&T President Budget Request (PBR) is $11.51 billion, a decrease of 5.6% in buying power, compared to FY 2014 PBR**
  - **Overall DoD Topline decreased 7.6% in buying power**
  - **Department protected S&T relative to DoD Topline**
  - **S&T is 2.3% of DoD Topline**
- **Basic Research is funded at approximately $2 billion, a decrease of $147 million, a decrease of 8.4% in buying power**
- **Defense Advanced Research Projects Agency is funded at $2.9 billion RDT&E to develop technologies for revolutionary, high-payoff, military capabilities**
- **S&T funding for each Military Department is maintained at approximately $2.0 billion**
- **Funds aligned to support strategic guidance and S&T priorities**

S&T Protected Relative to Other Accounts

BACK-UPS

Current COI Leaders

Leaders Selected from COI Steering Group:

- Advanced Electronics: Dr. Mike Deis (Air Force)
- Air Platforms: Mr. Doug Ebersole (Air Force)
- Autonomy: Dr. Morley Stone (Air Force)
- Biomedical (ASBREM): MG Joseph Caravalho (Army)
- C4I: Mr. John Willison (Army)
- C-IED: Dr. Karl Dahlhauser (OASD(R&E)/RD)
- C-WMD: Dr. Steven Wax (DTRA)
- Cyber – Dr. Richard Linderman (Air Force)
- ERS: Dr. Jeffery Holland (Army)
- EW/EP: Mr. Dave Hime (Air Force)
- Energy and Power Technology: Dr. Ed Shaffer (Army)
- Ground and Sea Platforms: Mr. Jack Taylor (OASD(R&E)/RD)
- Human Systems: Dr. Michelle Sams (Army)
- Materials: Dr. Jeffrey Zabinski (Army)
- Sensors and Processing: Dr. Don Reago (Army)
- Space: Dr. John Stubstad (OASD(R&E)/RD)
- Weapons: Dr. Spiro Lekoudis (OASD(R&E)/RD)