Outline

• Guidance and Priorities
• FY2016 S&T President’s Budget Request
• Historical Context
• Reliance 21 & Communities of Interest (COIs)
Key Elements of Defense Strategic Guidance

- The military will be *smaller and leaner*, but it will be agile, flexible, ready and technologically advanced.

- **Rebalance our global posture** and presence to emphasize the Asia-Pacific region.

- Build partnerships and **strengthen key alliances and partnerships** elsewhere in the world.

- Ensure that we can quickly confront and defeat aggression from any adversary – *anytime, anywhere*.

- **Protect and prioritize key investments** in technology and new capabilities, as well as our capacity to grow, adapt and mobilize as needed.
DoD at Strategic Crossroads

“The development and proliferation of more advanced military technologies by other nations means that we are entering an era where American dominance on the land and seas, in the skies, and in space can no longer be taken for granted”

The strategic question is – will the force of tomorrow be:

- Larger with diminished capability or,
- **Smaller** with more technologically advanced capabilities
“Advanced military technologies, from rockets and drones to chemical and biological capabilities, have found their way into the arsenals of both non-state actors as well as previously less capable militaries. Russia, China, Iran, and North Korea have been pursuing long-range, comprehensive military modernization programs to close the technology gap that has long existed between them and the United States.”

“These modernization programs are developing and fielding advanced aircraft, submarines, and both longer-range and more accurate ballistic and cruise missiles. They’re developing new and advanced anti-ship and anti-air missiles, as well as new counter space, electronic warfare, undersea, and air attack capabilities.”

Honorable Ashton Carter, Secretary of Defense, SASC Budget Hearing, March 3, 2015
FY 2016 OMB/OSTP S&T Priorities

– **S&T:** Basic and applied research and advanced technology development are important to DOD’s long-term technological superiority (~$12.3B)

– **DARPA:** High-risk, high-payoff research is critical contribution to DOD S&T (~$2.9B)

– **Advanced Manufacturing:** Support of the President’s National Network Manufacturing Initiative to fund six DOD-led manufacturing institutes (~$0.2B)

– **Hypersonics:** Support of national hypersonics requirements and capabilities

– **Prototyping Activities:** Support of efforts to reduces technical risk in acquisition programs and maintain workforce skills in design, systems engineering, and prototyping

– **Modernizing Laboratory Infrastructure:** Recommended DOD work within the MILCON process to secure funding for laboratory projects while also exploring alternative approaches that are consistent with OMB policies and regulations

– **Science, Technology, Engineering and Mathematics (STEM) Education:** OMB supports K-12 STEM activities and the Science, Mathematics, and Research for Transformation (SMART) program.
2014 Quadrennial Defense Review

• Builds upon/updates the 2012 Defense Strategic Guidance
  • Protect the homeland against all strategic threats
  • Build security globally by projecting U.S. influence and deterring aggressors
  • Project power and win decisively

• Embodies key elements of January 2012 Defense Strategy
  • Rebalance to Asia-Pacific
  • Sustaining commitments to allies in Middle East and Europe
  • Aggressively pursue counterterrorism campaign
  • Emphasis on key threat areas (e.g., cyber, missile defense, special operations, space, capabilities etc.)
  • No longer size forces for large, prolonged stability operations
Defense R&E Strategy

1. **Mitigate** current and anticipated threat capabilities
   - Cyber
   - Counter Space
   - Missile Defense
   - Electronic Warfare
   - Counter-WMD

2. **Affordably** enable new or extended capabilities in existing military systems
   - Systems Engineering
   - Capability Prototyping
   - Interoperability
   - Modeling and Simulation
   - Developmental Test & Eval.
   - Power & Energy

3. Create **technology surprise** through science and engineering
   - Autonomy
   - Human Systems
   - Quantum Systems
   - Data Analytics
   - Hypersonics
   - Basic Sciences

Technology Needs

- Cyber / Electronic Warfare
- Engineering / M & S
- Capability Prototyping
- Protection & Sustainment
- Advanced Machine Intelligence
- Anti-Access/Area Denial (A2/AD)
FY 2016 Investments Aligned to Defense R&E Strategy

• **Mitigate**
  – Project Power Despite Anti-access/Area-denial Challenges (~$2.0B+)
  – Counter Weapons of Mass Destruction (~$0.9B)
  – Cyberspace and Space (~$1.0B)
  – Electronic Warfare (~$0.5B)

• **Affordability**
  – Advanced Manufacturing (~$0.2B)
  – Prototyping Efforts (~$0.6B)

• **Surprise**
  – High-speed Kinetic Strike (~$0.3B)
Defense Innovation Initiative and the Long-Range Research and Development Program Plan

- The **Defense Innovation Initiative (DII)** is a DoD-wide effort to identify and invest in innovative ways to sustain and advance our national security into the 21st century. The DII also involves the development of innovative operational concepts that would help the U.S. use our current capabilities in new and creative ways.

- The **Long-Range Research and Development Program Plan (LRRDPP)** is a part of the DII effort that will identify, develop, and field breakthrough technologies and systems. PBR 16 supports this effort through specific investments in promising new technologies and capabilities such as high-speed strike weapons, advanced aeronautics, rail guns, and high energy lasers.
“Our technological superiority is not assured, and in fact it is being challenged very effectively right now.”

-Frank Kendall, USD(AT&L) 19 Sep 2014

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PB 16 DoD S&T Budget Request

Total PB 16 S&T request = $12.27B

Total FY 15 S&T Request = $11.51B
Army = 2,205  Navy = 1,992  AF = 2,129  DARPA = 2,843  ChemBio = 407  DTRA = 473  OSD = 1,059  Other DA = 406
### DoD PB-15 & PB-16 RDT&E Budget Request Comparison

- **in Then Year Dollars**

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

- **S&T**:
  - **BA1 Basic Research** ($2.02B)
  - **BA2 Applied Research** ($4.46B)
  - **BA3 Advanced Technology Development** ($5.04B)
- **BA4 Advanced Component Development & Prototypes** ($12.33B)
- **BA5 System Development & Demonstration** ($11.09B)
- **BA6 RDT&E Management Support** ($4.22B)
- **BA7 Operational Systems Development** ($24.38B)

#### PB 16 RDT&E Request = $69.78B
(Budget Activities 1-7)

- **S&T**:
  - **BA1 Basic Research** ($2.09B)
  - **BA2 Applied Research** ($4.71B)
  - **BA3 Advanced Technology Development** ($5.46B)
- **BA4 Advanced Component Development & Prototypes** ($14.40B)
- **BA5 System Development & Demonstration** ($12.77B)
- **BA6 RDT&E Management Support** ($4.18B)
- **BA7 Operational Systems Development** ($26.16B)

### Technology Base (BA1 + BA2)

- **FY 15**
  - $6.47B
- **PB 16**
  - $6.80B

### S&T Nutrition:

- **FY 15**
  - $11.51B
  - S&T = $18.1% of RDT&E
  - RDT&E = 13.1% of DOD Topline (Base only)
- **PB 16**
  - $12.27B
  - S&T = $17.6% of RDT&E
  - RDT&E = 12.8% of DOD Topline (Base only)
RDT&E Budget Request Overview
- FY 2015 to FY 2016 Adjustments -

<table>
<thead>
<tr>
<th>BA</th>
<th>FY 2015 Dollars (in Millions)</th>
<th>FY 2016 Dollars (in Millions)</th>
<th>Adjustments (in Millions)</th>
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<tr>
<td>BA 1</td>
<td>71</td>
<td>-1,500</td>
<td>-1,571</td>
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<td>BA 2</td>
<td>256</td>
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<td>BA 3</td>
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<td>BA 4</td>
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<td>BA 5</td>
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<td>BA 7</td>
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(TY Dollars in Millions)
# President’s Budget 2016
## DoD R&E Budget Request Comparison

<table>
<thead>
<tr>
<th></th>
<th>PBR 2015</th>
<th>PBR 2016 (FY 2015 CY $)</th>
<th>% Real Change from PBR 2015</th>
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<tbody>
<tr>
<td>Basic Research (BA 1)</td>
<td>2,018</td>
<td>2,089 (2,049)</td>
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<tr>
<td>Applied Research (BA 2)</td>
<td>4,457</td>
<td>4,713 (4,622)</td>
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<td>Advanced Technology Development (BA 3)</td>
<td>5,040</td>
<td>5,464 (5,359)</td>
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<td>DoD S&amp;T</td>
<td>11,514</td>
<td>12,266 (12,030)</td>
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<td>Advanced Component Development and Prototypes (BA 4)</td>
<td>12,334</td>
<td>14,402 (14,125)</td>
<td>14.52%</td>
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<tr>
<td>DoD R&amp;E (BAs 1 - 4)</td>
<td>23,848</td>
<td>26,668 (26,155)</td>
<td>9.67%</td>
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<tr>
<td>DoD Topline</td>
<td>496,600</td>
<td>534,313 (524,042)</td>
<td>5.53%</td>
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</tbody>
</table>
FY 2016 Technology Investment Compared to Other DoD Categories

DoD Can Not “Fix” Today’s Problems by Reducing S&T
FY16 PB Request is $36B above Sequestration level
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DoD S&T Breakout
- Services and Defense Agencies as % of Total S&T -

President's Budget Requests

Percent of Funding

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Services as % of S&amp;T</th>
<th>Defense Agencies as % of S&amp;T</th>
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</thead>
<tbody>
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<td>FY 14</td>
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<tr>
<td>FY 16</td>
<td>54.57%</td>
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<td>FY 18</td>
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<tr>
<td>FY 20</td>
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Services
Defense Agencies

Devolution
Outline

- Guidance and Priorities
- FY2016 S&T President’s Budget Request
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- Reliance 21 & Communities of Interest (COIs)
Reliance 21 and COIs

- 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

- 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

- COIs were established in 2009 as a mechanism to encourage multi-agency coordination and collaboration.

Reliance 21 Communities of Interest

17 cross-cutting technical areas, each with a Steering Group Lead and multiple technical ‘challenge areas’ staffed with Subject Matter Experts (SMEs) from Services & Defense Agencies

* Denotes DoD cross-cutting S&T Priorities (Data-to Decisions is found in C4I)
PB 2015 FY 15 S&T
Basic Research BA1 & BA2/BA3 by Community of Interest

S&T = $11.5B

Note:
- $42M PB15-FY15 Navy programs are not specified at this time
- "Other" includes Battlespace Environments, M&S Technology, other

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Summary
--Where We Are Today--

• FY 2016 S&T President Budget Request (PBR) is $12.27 billion, which is a $750 million increase (6.5%) as compared to FY 2015 PBR and a 4.5% increase in buying power
  – S&T is 2.3% of DoD Topline

• Basic Research is funded at approximately $2.09 billion, a 3.5% increase compared to FY 2015 PBR

• 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 $2.1 - $2.4 billion

• Funds aligned to support strategic guidance and S&T priorities
BACK-UPS
## Current COI Leaders

<table>
<thead>
<tr>
<th>Category</th>
<th>Leader Name</th>
<th>Sponsor</th>
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<tbody>
<tr>
<td>Advanced Electronics</td>
<td>Ms. Ruth Moser</td>
<td>Air Force</td>
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<tr>
<td>Air Platforms</td>
<td>Mr. C. Douglas Ebersole</td>
<td>Air Force</td>
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<tr>
<td>ASBREM</td>
<td>RADM Bruce Doll</td>
<td>Navy</td>
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<tr>
<td>Autonomy</td>
<td>Dr. Jonathan Bornstein</td>
<td>Army</td>
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<tr>
<td>C4I</td>
<td>Mr. John Willison</td>
<td>Army</td>
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<tr>
<td>Counter-IED</td>
<td>Dr. Karl Dahlhauser</td>
<td>ASD(R&amp;E)</td>
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<td>Counter-WMD</td>
<td>Dr. Steven Wax</td>
<td>DTRA</td>
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<tr>
<td>Cyber</td>
<td>Dr. Richard Linderman</td>
<td>Air Force</td>
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<tr>
<td>Electronic Warfare/Electronic Protection</td>
<td>Dr. Peter Craig</td>
<td>Navy</td>
</tr>
<tr>
<td>Energy and Power Technology</td>
<td>Dr. Richard Carlin</td>
<td>Navy</td>
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<tr>
<td>Engineered Resilient Systems</td>
<td>Dr. Jeffery Holland</td>
<td>Army</td>
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<td>Ground and Sea Platforms</td>
<td>Dr. John Pazik</td>
<td>Navy</td>
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<td>Human Systems</td>
<td>Dr. Michelle Sams</td>
<td>Army</td>
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<td>Materials &amp; Manufacturing Processes</td>
<td>Dr. Julie Christodoulou</td>
<td>Navy</td>
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<td>Sensors</td>
<td>Dr. Don Reago</td>
<td>Army</td>
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<tr>
<td>Space</td>
<td>Dr. John Stubstad</td>
<td>ASD(R&amp;E)</td>
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<tr>
<td>Weapons Technologies</td>
<td>Mr. Mike Zoltoski</td>
<td>Army</td>
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