Process Used to Develop the DoD Science & Technology Priorities
November 8, 2011

Mr. Bob Baker
Deputy Director, Plans & Programs
Assistant Secretary of Defense (Research & Engineering)
The 2010 QDR identified 6 Key Mission Areas (KMAs) that DoD should build capability capacity to be successful in the future global security environment:

- Defend the United States and Support Civil Authorities at Home
- Succeed in Counterinsurgency, Stability, and Counterterrorist Operations
- Build the Security Capacity of Partner States
- Deter and Defeat Aggression in Anti-Access Environments
- Prevent Proliferation and Counter Weapons of Mass Destruction
- Operate Effectively in Cyberspace.
QDR Key Mission Areas and Department Planning and Programming Guidance (DPPG) Tasking

**Key Mission Areas**

<table>
<thead>
<tr>
<th>Mission Area</th>
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<tbody>
<tr>
<td>Defend U.S. and Support Civil Authorities at Home</td>
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<tr>
<td>Succeed in COIN/Stability/CT Ops</td>
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<td>Build Partner Security Capacity</td>
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<td>Deter and Defeat Aggression in Anti-Access Environments</td>
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<td>Prevent Proliferation and Counter WMD</td>
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**DPPG Task:** “The DDR&E, with the support of the Secretaries of the Military Departments, Directors of the Defense Agencies, and CJCS will lead an effort across the Department to identify the core capabilities and enabling technologies for each of the six QDR key mission areas.”

-- July 12, 2010 --
# QDR KMA Study Timeline

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<td>Kickoff</td>
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<td>Working Groups</td>
<td>Strawman Mission Area</td>
<td>OV-1 Architectures</td>
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<td>Working Groups</td>
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<td>Enterprise Working Meeting</td>
<td>(S&amp;T, CAPE, Policy, COCOM)</td>
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<td>OV-1 Architecture Definition</td>
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<td>Critical Capability Definition</td>
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<td>7 July</td>
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<td>Industry Day</td>
<td>Enabling Technology Identification Working Sessions</td>
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<td>29 July</td>
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DoD S&T Priorities Development Process

October
Single-Service Led S&T Priorities

- Army
  - Immersive Training
- Navy
  - Undersea Warfare
- Air Force
  - Long Range Strike
  - Affordable Space Access

Note: The QDR KMAs are additive to core military missions and competencies assigned to the Armed Forces
Initial S&T Priorities - 54 Total
- Reduced to 7 -

- **QDR KMA DPPG Study:**
  - Data to Decisions
  - Systems 2020
  - Immersive Training
  - Autonomy for Standoff, Speed & Scale
  - Human Terrain Preparation
  - CBRN Standoff Detection, Locate, Monitor & Track
  - Cyber Mission Assurance/Dominance - Includes Trust & Attribution
  - Rapidly Tailored Effects
  - EM Spectrum Management
  - Knowledge and Information Management / Architecture
  - Ubiquitous Observation
  - Access and Sharing of DoD Information/Databases
  - Alternatives to GPS for providing PNT
  - Contextual Exploitation

- **TFTs and COIs:**
  - High Speed / Hypersonics
Initial S&T Priorities - 54 Total - Reduced to 7 (contd.) -

- TFTs and COIs (contd.)
  - Highly Adaptive Turbine Engines
  - Multi Role Vertical Lift
  - Reasoning Machines
  - Teaming Large Numbers of Autonomous Hetero. Systems
  - Developing Materials Underpinning Electronics Technologies
  - Force Protection
  - Mobility
  - Integrated Computational Materials Science and Engineering (ICMSE)
  - Complex Engineered Materials
  - Improved Kinetic Weapons

- Service and Agency Priorities
  - Autonomy
  - Power & Energy
  - Total Ownership Cost
  - Directed Energy
  - Educational Outreach/STEM
Initial S&T Priorities - 54 Total
- Reduced to 7 (contd.) -

- Service and Agency Priorities (contd.)
  - Irregular Warfare/Counter IED
  - Undersea Warfare
  - Electronic Warfare/Electronic Protection
  - Improved Situation Awareness, Persistent ISR
  - Climate Change and the Arctic
  - Long-Range Strike
  - Medical PTSD/TBI, Blast/Trauma
  - Enhanced Cognitive Performance
  - Software Assurance
  - Rare Earth Element Technologies
  - Small Engines/Alternate Propulsion
  - Military-Unique Fixed-Wing and Rotary-Wing Technologies
  - Human System
  - Affordable Space Access
  - Precision lethality
  - Counter-WMD Technologies (9 total that were consolidated to 1)
### FY 2013 S&T Priorities Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
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<tbody>
<tr>
<td>Nov 8-12</td>
<td><strong>S&amp;T Deputies Council Meeting</strong> - Priorities spreadsheet discussion</td>
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<td>Nov 15-19</td>
<td><strong>S&amp;T Deputies Council Meeting</strong> - Priorities spreadsheet discussion</td>
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<td>Nov 22-26</td>
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<td>Nov 29-Dec 3</td>
<td><strong>S&amp;T Deputies Council Working Group</strong></td>
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<td>Dec 6-10</td>
<td><strong>S&amp;T Deputies Council Meeting</strong> - Priorities spreadsheet discussion</td>
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<td>Dec 13-17</td>
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#### 10 Nov
- **S&T Deputies Council Meeting** - Priorities spreadsheet discussion

#### 3 Nov
- **Service Priorities**
  - QDR KMA Study
  - DPPG Studies
  - OSTP Priorities
  - TFT/COI Priorities

#### 17 Nov
- **S&T Deputies Council Meeting** - Priorities spreadsheet discussion

#### 17 Nov
- **S&T Deputies Council Meeting** - Discuss which priorities make it into DDR&E Guidance Memo - QDR KMA Study Team 1 Brief

#### 23 Nov
- **S&T Deputies Council Meeting** - Reviewed voting on top 6-8 S&T Priorities

#### 30 Nov
- **S&T Deputies Council Meeting** - POC briefings on S&T Priorities

#### 8 Dec
- **S&T Deputies Council Meeting** - Review DDR&E Guidance Memo - Dry run S&T Priorities Briefing

#### 15 Dec
- **S&T EXCOM** - S&T Priorities Briefing

**Roadmap Development**
Process for Developing S&T Priorities

S&T Investment Drivers

- **Warfighters**
  - IPLs/STIPLs
  - RDA Task Force

- **Strategic Guidance**
  - QDR KMA Studies
  - DPPG Studies
  - OSTP Priorities

- **Technology Push**
  - TFT Priorities
  - COI Priorities

- **Service Priorities**
  - Immersive Training
  - Undersea Warfare
  - Affordable Space Access

**Comprehensive List of S&T Priorities**

- (54 Total)

**Identify Cross-cutting & Single Service Priorities**

**S&T EXCOM Review**

High Level Review of Existing Priorities

(7 Identified)

**SECDEF S&T Priorities Memo**

Apr 19. 2011
Secretary of Defense
S&T Priorities Memo – Apr 19, 2011

S&T Priorities

- Data-to-Decisions
- Engineered Resilient Systems
- Cyber Science and Technology
- Electronic Warfare / Electronic Protection
- Counter Weapons of Mass Destruction
- Autonomy
- Human Systems

“The Assistant Secretary of Defense for Research and Engineering, with the Department’s S&T Executive Committee and other stakeholders, will oversee the development of implementation roadmaps for each priority. These roadmaps will coordinate Component investments in the priority areas to accelerate the development and delivery of capabilities consistent with these priorities.”
Priority S&T Investment Areas for FY 2013-2017

- **Data-to-Decisions**  
  - Science and applications to reduce the cycle time and manpower requirements for analyses and use of large data sets.

- **Engineered Resilient Systems**  
  - Engineering concepts, science, and design tools to protect against malicious compromise of weapon systems, and to develop agile manufacturing for trusted and assured defense systems.

- **Cyber Science and Technology**  
  - Science and technology for efficient, effective cyber capabilities across the spectrum of joint operations.

- **Electronic warfare / Electronic protection**  
  - New concepts and technology to protect systems and extend capabilities across the electro-magnetic spectrum.

- **Counter Weapons of Mass Destruction (WMD)**  
  - Advances in DoD’s ability to locate, secure, monitor, tag, track, interdict, eliminate, and attribute WMD weapons and materials.

- **Autonomy**  
  - Science and technology to achieve autonomous systems that reliably and safely accomplish complex tasks in all environments.

- **Human Systems**  
  - Science and technology to enhance human-machine interfaces to increase productivity and effectiveness across a broad range of missions.