



DoD Engineering and Better Buying Power 3.0

Mr. Stephen P. Welby

**Deputy Assistant Secretary of Defense for Systems
Engineering**

**NDIA Systems Engineering Division
Annual Strategic Planning Meeting
December 10, 2014**



DASD, Systems Engineering Mission



Systems Engineering focuses on engineering excellence – the creative application of scientific principles:

- To design, develop, construct, and operate complex systems
- To forecast their behavior under specific operating conditions
- To deliver their intended function while addressing economic efficiency, environmental stewardship, and safety of life and property

DASD(SE) Mission: Develop and grow the Systems Engineering capability of the Department of Defense – through engineering policy, continuous engagement with component Systems Engineering organizations, and through substantive technical engagement throughout the acquisition life cycle with major and selected acquisition programs

- ***U.S. Department of Defense is the World's Largest Engineering Organization***
- ***Over 108,000 Uniformed and Civilian Engineers***
- ***Over 39,000 in the Engineering (ENG) Acquisition Workforce***

A Robust Systems Engineering Capability Across the Department Requires Attention to Policy, Practice, and People



DASD(SE) Key Responsibilities



- **Program Engagement**

- Serve as principal engineering advisor to the SECDEF and USD(AT&L) in support of critical acquisition decisions
- Provide continuous engineering oversight and mentoring of Major DoD Programs to identify, assess, and mitigate engineering risk; focus on helping ensure program success
- Serve as approval authority for Systems Engineering Plans for all Major DoD Programs
- Certify completeness of Preliminary Design Reviews and Critical Design Reviews for all Major DoD Programs

- **Policy and Guidance**

- Develop engineering, manufacturing, reliability, program protection, and modeling and simulation policy and guidance for the DoD
- Serve as Defense Standardization Executive – approve military standards and coordinate DoD engagement on non-military standards

- **Technical Workforce Development**

- Provide functional leadership for the Non-Construction (Engineering) and the Acquisition (ENG and PQM) workforce

- **Engineering Research and Development**



- Sponsor the DoD Systems Engineering Research Center (SERC) University Affiliated Research Center (UARC)
- Sponsor the MITRE National Security Engineering Center (NSEC) Federally Funded Research and Development Center (FFRDC)


Reference: DoDI 5134.16, Deputy Assistant Secretary of Defense for Systems Engineering



DASD, Systems Engineering



 **DASD, Systems Engineering**
Stephen Welby
Principal Deputy Kristen Baldwin 

 **Major Program Support**
James Thompson

Supporting USD(AT&L) Decisions with Independent Engineering Expertise

- Engineering Assessment / Mentoring of Major Defense Programs
- Program Support Assessments
- Overarching Integrated Product Team and Defense Acquisition Board Support
- Systems Engineering Plans
- Systemic Root Cause Analysis
- Development Planning/Early SE
- Program Protection

 **Engineering Enterprise**
Robert Gold

Leading Systems Engineering Practice in DoD and Industry

- Systems Engineering Policy and Guidance
- Technical Workforce Development
- Specialty Engineering (System Safety, Reliability and Maintainability, Quality, Manufacturing, Producibility, Human Systems Integration)
- Security, Anti-Tamper, Counterfeit Prevention
- Standardization
- Engineering Tools and Environments

Providing technical support and systems engineering leadership and oversight to USD(AT&L) in support of planned and ongoing acquisition programs



Better Buying Power 3.0 (Draft)

Achieving Dominant Capabilities Through Technical Excellence and Innovation



Achieve Affordable Programs

- Continue to set and enforce affordability caps

Achieve Dominant Capabilities While Controlling Lifecycle Costs

- Strengthen and expand “should cost” based cost management
- Build stronger partnerships between the acquisition, requirements, and intelligence communities
- Anticipate and plan for responsive and emerging threats
- Institutionalize stronger DoD level Long Range R&D Planning

Incentivize Productivity in Industry and Government

- Align profitability more tightly with Department goals
- Employ appropriate contract types, but increase the use of incentive type contracts
- Expand the superior supplier incentive program across DoD
- Increase effective use of Performance-Based Logistics
- Remove barriers to commercial technology utilization
- Improve the return on investment in DoD laboratories
- Increase the productivity of IR&D and CR&D

Incentivize Innovation in Industry and Government

- Increase the use of prototyping and experimentation
- Emphasize technology insertion and refresh in program planning
- Use Modular Open Systems Architecture to stimulate innovation
- Increase the return on Small Business Innovation Research (SBIR)
- Provide draft technical requirements to industry early and engage industry in funded concept definition to support requirements definition
- Provide clear “best value” definitions so industry can propose and DoD can choose wisely

Eliminate Unproductive Processes and Bureaucracy

- Emphasize Acquisition Executive, Program Executive Office and Program Manager responsibility, authority, and accountability
- Reduce cycle times while ensuring sound investments
- Streamline documentation requirements and staff reviews

Promote Effective Competition

- Create and maintain competitive environments
- Improve technology search and outreach in global markets

Improve Tradecraft in Acquisition of Services

- Increase small business participation, including more effective use of market research
- Strengthen contract management outside the normal acquisition chain
- Improve requirements definition
- Improve the effectiveness and productivity of contracted engineering and technical services

Improve the Professionalism of the Total Acquisition Workforce

- Establish higher standards for key leadership positions
- Establish stronger professional qualification requirements for all acquisition specialties
- Strengthen organic engineering capabilities
- Ensure the DoD leadership for development programs is technically qualified to manage R&D activities
- Improve our leaders’ ability to understand and mitigate technical risk
- Increase DoD support for Science, Technology, Engineering and Mathematics (STEM) education

Continue Strengthening Our Culture of Cost Consciousness, Professionalism, and Technical Excellence



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Highlighted items are key opportunities for engineering community engagement

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Institutionalize Stronger DoD Level Long-Range R&D Planning



- **Challenges**

- U.S. faces a potential loss of technological superiority in light of threat investments
- Threats have studied U.S. warfighting strengths and weaknesses and have identified effective countermeasures (e.g., global investments in Anti-Access/Area Denial Capabilities, Electronic Warfare Modernization, etc.)
- Responding symmetrically to threat investments has limited value and imposes significant cost on U.S.
- Current DoD R&D planning is largely focused on mapping investments to critical technology areas; limited, focused investments on high-value game changers that challenge current operational concepts

- **BBP 3.0 Opportunity**

- Initiate a DoD-level long-range plan to provide strategic R&D investment guidance (similar to that conducted in the 1970s) focused on identifying and accelerating enabling R&D that may lead to innovative capability concepts that:
 - Offer significant warfighting advantage over current capabilities
 - Provide asymmetric advantages over potential threat capabilities
 - Allow the U.S. to cost-effectively shape the trajectory of future military materiel competition



Defense Innovation Initiative (DI)



SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

NOV 15 2014

MEMORANDUM FOR DEPUTY SECRETARY OF DEFENSE
SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DEPUTY CHIEF MANAGEMENT OFFICER
CHIEFS OF THE MILITARY SERVICES
CHIEF OF THE NATIONAL GUARD BUREAU
DIRECTOR, COST ASSESSMENT AND PROGRAM EVALUATION
DIRECTOR, OPERATIONAL TEST AND EVALUATION
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
DEPARTMENT OF DEFENSE CHIEF INFORMATION OFFICER
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

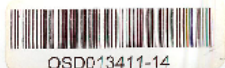
SUBJECT: The Defense Innovation Initiative

I am establishing a broad, Department-wide initiative to pursue innovative ways to sustain and advance our military superiority for the 21st Century and improve business operations throughout the Department. We are entering an era where American dominance in key warfighting domains is eroding, and we must find new and creative ways to sustain, and in some areas expand, our advantages even as we deal with more limited resources. This will require a focus on new capabilities and becoming more efficient in their development and fielding.

At a time of constrained and uncertain budgets, the demand for innovation must be Department-wide and come from the top. Accordingly, I am directing Deputy Secretary of Defense Bob Work to oversee this effort. He will report back to me quarterly on progress we have made, and I will remain actively involved in overseeing all aspects of this effort.

We have always lived in an inherently competitive security environment and the past decade has proven no different. While we have been engaged in two large land mass wars over the last thirteen years, potential adversaries have been modernizing their militaries, developing and proliferating disruptive capabilities across the spectrum of conflict. This represents a clear and growing challenge to our military power.

I see no evidence that this trend will change. At the same time, downward fiscal pressure will constrain the way we have traditionally addressed threats to our military superiority and demand a more innovative and agile defense enterprise. We must take the initiative to ensure that we do not lose the military-technological superiority that we have long taken for granted.



OSD013411-14

Secretary of Defense Chuck Hagel's November 15, 2014 memo, "The Defense Innovation Initiative" directs:

"A new long-range research and development planning program will identify, develop, and field breakthrough technologies and systems that sustain and advance the capability of U.S. military power."



Background

We've accomplished this before. In the 1950s, President Eisenhower successfully offset the Soviet Union's conventional superiority through his New Look build-up of America's nuclear deterrent. In the 1970s, Secretary of Defense Harold Brown, working closely with Under Secretary – and future Defense Secretary – Bill Perry, shepherded their own offset strategy, establishing the Long-Range Research and Development Planning Program that helped develop and field revolutionary new systems, such as extended-range precision-guided munitions, stealth aircraft, and new intelligence, surveillance, and reconnaissance platforms.

Remarks by Secretary Chuck Hagel
Reagan National Defense Forum
November 15, 2014



Long-Range R&D Plan (LRRDP) Approach



Identify high-payoff enabling technology investments that could:

- Provide an opportunity to shape key future US materiel investments
- Offer opportunities to shape the trajectory of future competition for technical superiority, and
- Will focus on technology that can be moved into development programs within the next five years.

<http://www.defenseinnovationmarketplace.mil/LRRDP.html>



LRRDP Organization

LRRDP Study Structure

Request For Information
Solicits Inputs from Industry, Academia, Associations and General Public
(Reinforced by Public Affairs Outreach)



Steering Group
USD(AT&L),
J8, ASD(R&E), ASD(A), D,DARPA

Government-only study
addresses FACA rules

Integration Working Group
DASD(SE),
D,SCO, J8 Representative &
Working Group Leads

Scenarios and Implications
DASD(SE), USD(P)

Working Groups will support deliberations
with fact finding from RFI inputs
and invited speakers

Space Technology Working Group

Undersea Technology Working Group

Air Dominance & Strike Technology Working Group

Air and Missile Defense Technology Working Group

Technology-Driven Working Group

Integration Group will leverage DSB to provide feedback on interim LRRDP products

Defense Science Board (DSB)



LRRDP Request for Information Approach



- **Five focus areas**

1. Space Technologies
2. Undersea Technologies
3. Air Dominance and Strike Technologies
4. Air and Missile Defense Technologies
5. Technology-Driven Concepts

- **Submissions**

- Abstracts accepted from general public describing specific technologies and use cases or implementation concepts
- Will accommodate both unclassified and classified abstracts

- **Timeline**

- Initial close out 45 days after RFI release
- Monthly rolling close outs every 30 days thereafter until April



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Join the BBP 3.0 Discussion



We Want Your Feedback:
<https://www.betterbuying3.com/>

**Better Buying Power
Website for past and
current BBP resource
materials:**
<http://bbp.dau.mil>

Join our conversation:
OSD.ATL.BBP@mail.mil

The image displays two screenshots of web pages related to the Better Buying Power (BBP) initiative.

The top screenshot shows a browser window at <https://www.betterbuying3.com/Account/Login?ReturnUrl=%2F>. The page is titled "Better Buying Power 3.0 Feedback" and "A Business Defense Initiative". It features a registration form with fields for "Enter your email", "Create a password", and "Confirm password". A background image of a ship's radar is visible.

The bottom screenshot shows a browser window at <http://bbp.dau.mil/>. The page is the "Better Buying Power" website, with the subtitle "Acquisition, Technology and Logistics". It features a navigation menu (Home, About, Initiatives, Library, Military Services, Resources, Contact) and a main content area with a large image of a military truck. A red banner reads "Ensuring Our Nation Can Afford The Systems and Services It Acquires". Below this are five key areas: "Ensuring Affordability", "Innovative Strategy Saves \$298M", "Tapping Small Business Innovation", "Economic Hawk Eye Production Rates", and "Focus on Requirements Yields Benefits". The page also includes sections for "What Is Better Buying Power?", "Items of Interest", and "BBP Focus Areas".



Systems Engineering: Critical to Defense Acquisition



Defense Innovation Marketplace
<http://www.defenseinnovationmarketplace.mil>

DASD, Systems Engineering
<http://www.acq.osd.mil/se>