



Defense Research & Engineering Source Document *Blueprint for the Future*

John J. Young, Jr., DDR&E

April 2006

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE APR 2006		2. REPORT TYPE		3. DATES COVERED 00-00-2006 to 00-00-2006	
4. TITLE AND SUBTITLE Defense Research & Engineering Source Document Blueprint for the Future				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Department of Defense, Director of Research and Engineering, Rosslyn, VA, 22209				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



DDR&E Source Document Overview



- This Source Document is to give all of us in Defense Research and Engineering a place to stand as we seek to develop the strategic capabilities necessary to support the men and women who put on the cloth of the nation.
- It contains in one place: 1) the new strategic context we are working in, 2) our vision of the future, 3) guiding principles, 4) proactive approaches, 5) and specific goals.
- It recognizes that the DDR&E Team is an extended enterprise and provides the means by which leaders communicate our goals to everyone on the team in a way that provides both direction and motivation.
- The Source Document is intended to provide a framework that gives all of us a shared purpose, while shaping our way of being, thinking, and attitudes.
- It is intended to be the basis by which individual goals are set, planning is done, decisions are made, and actions are taken.



Communication is a Function of Intention

- In the normal course of events people give a speech in front of a room like this with the intention of sharing their views in an interesting way.
- People listen to what the speaker says -- “That was interesting” or “Ho hum.” Yet within a few hours or days the “conversation disappears.”
- Today I speak with a different kind of intention--that of “sourcing the organization,” of creating something that doesn’t exist.
- I would also like to ask you to listen with a different kind of intention-- to “get” what’s in the “source document” and make it your own.
- I would like you to listen from the point of view that you have a very special responsibility for recreating the “source document” in your unit.
- This not only means sharing the vision, guiding principles, goals, methodologies, but actually playing a part in bringing them to pass.

9/11 Changed Everything

From working to provide overmatching capability against any nation-state on the sea, in the air and on the land ... to a global war on terrorism against an enemy who fights in the shadows...



“The concept of a virtual organization is essential to understanding how 21st Century business will work. Al Qaeda represents a new and dangerous kind of virtual organization and the rise of the virtual state. We are entering into an era in which a small number of people, operating without state sponsorship, but using the enormous power of modern computers, biogenetic pathogens, air transport, suitcase bombs, and even small nuclear weapons will be able to penetrate the tremendous vulnerabilities of contemporary open societies.” - *Time*, 9 Sept. 2002

“Today the Department of Defense again is in need of change and adjustment. Current arrangements pretty much designed for the Cold War must give way to the new demands of war against extremists and other evolving 21st century challenges” - Secretary Rumsfeld

The Research & Engineering community must develop and deliver systems which provide **strategic resilience**. Our systems must be flexible enough to respond to the many means terrorists or hostile forces might employ. We must also reinvent ourselves, our processes, and our thinking continuously-- not just when there is a new crisis or new foes threatening our national security.



Today and Tomorrow

“On September 11, 2001, we found that problems originating in a failed and oppressive state 7,000 miles away could bring murder and destruction to our country.”

“To keep America competitive, one commitment is necessary above all: We must lead the world in human talent and creativity. Our greatest advantage in the world has always been our educated, hardworking, ambitious people, and we are going to keep that edge.”

President George W. Bush
2006 State of the Union



DDR&E Vision: Develop Technology to Defeat Any Adversary on Any Battlefield.

We recognize that to achieve this, we need to create an Inspired, High Performing, Boundary-less Organization that Delivers.

To achieve this vision, we need to create an inspired, high-performing organization where each person makes a difference. We also need to collaborate effectively across traditional boundaries. This means we need to see the value of an informal organization. We need to see ourselves as part of a community or neighborhood that comes together as stakeholders around joint projects.



Vision Goal: Develop and deliver technology to provide unmatched capability against any adversary for the men & women who put on the cloth of the nation.

I. Strategic Interests

The Pyramid
of Strategic
Capability



*Defeat Any
Adversary on
Any Battlefield*

II. Strategic Resilience

III. Strategic Awareness

I. Our STRATEGIC INTERESTS are everywhere and anywhere in the world

We must use the nation's human capital to develop technology and tools to meet the global mission.

- In the past, our strategic interests were defined by how the US and the USSR divided the world.
- Today our strategic interests are global – anywhere in the world and at any time – with new competitors on the horizon.
- There are military operations in places where unstable governments can foster conditions leading to terrorism — Horn of Africa, Philippines, Liberia.
- Military forces are uniquely capable of providing global access to the nation's interests.
- Our nation's human capital must be innovatively engaged in delivering resilient military capability to the furthest corners of the earth.
- While addressing today's challenges, America must prepare for future competitiveness and “shape our economic future.”



II. STRATEGIC AWARENESS is required to support the nation's global Strategic Interests

The Defense Research & Engineering Team will advance the joint requirement to generate and provide information to the nation's decision makers.

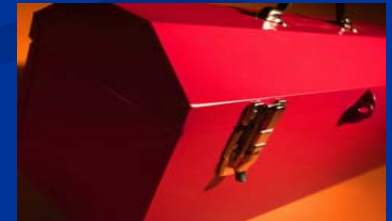
- In ongoing operations in OIF and OEF, with only limited clues, Military Forces need to be given or generate awareness of who is friendly and who is the lurking bad guy.
- Men and women in uniform need to be prepared for the spectrum from combat operations to diplomatic roles, and be able to detect signs that the environment is shifting.
- We have to detect the signs of a terrorist cell collecting information on buildings, loading explosives in a truck, making travel reservations, or training for coordinated actions in an effort to create a public disaster.
- We have to use our insight and foresight to anticipate the tools and tactics which may be used by terrorists.



III. STRATEGIC RESILIENCE is required to ensure that the nation has many ways to respond.

We need to reinvent the warfighter's toolbox continuously and fill it with flexible systems.

- Strategic Resilience? First it means: We have a toolbox and we will use it with daring and imagination to strike the enemy based on what we know today.
- We don't know what we don't know, so resilience means using what we have in our toolbox today in a different way to defeat an enemy that we can't foresee, who is using methods we don't expect.
- Resilience means having foresight about who the enemy is or might become, creating new & better tools for tomorrow, and ensuring we spend taxpayer dollars on the right things.
- Resilience means being resourceful by leveraging technology, innovation, joint, and allied/coalition capabilities - harvesting efficiencies to be reinvested in war fighting capabilities.
- To create a more resilient joint force, we also need personal resilience. We need to be able to fundamentally question who we are, what we do, how we do it.
- We need to build prototypes and conduct experiments to provide options



Guiding Principles

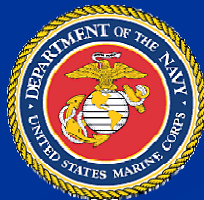
The Defense Research & Engineering Team must use insight and collaboration to anticipate, develop and deliver the technologies necessary for the joint warfighter.

- Understand the warfighter's operational concepts and needs
- Invest in programs that can transition and meet critical warfighter needs
- Apply the unique skills and enterprise insights afforded Team Members to identify research investment areas
- Integrate combatant commander needs and Service requirements to define development priorities
- Coordinate and prioritize requirements, remaining constantly conscious of jointness and interoperability imperatives
- Lead the revitalization of technology intelligence to minimize the probability of technology surprise from adversaries



The Defense Research & Engineering Team will MAP PATHS TO FUTURE CAPABILITY

- Define technology thrust areas which provide overmatch capability and assured force superiority across the full spectrum of military operations
- Address Urgent Warfighter Needs with R&D Funding and Programs
- Identify and evaluate opportunities to harmonize requirements and development strategies on ACAT I, II, III, and IV programs
- Select key capability areas where Service missions overlap and complete a review of the relevant technology programs
- Review and coordinate R&D programs to integrate Service and Joint requirements, development and testing in order to achieve “born joint” investment programs



We must recognize needs and invest to deliver a joint, interoperable force

- Drive development investments and product transitions to field capability against urgent operational needs and warfighter capability gaps
- Review and coordinate programs to build-in interoperability from Applied Research through Advanced Component Development and Prototypes
- Investigate and develop research thrust areas to develop new or disruptive technologies – “big bets”
- Review network centric warfare programs to seek greater interoperability for the Joint Force Commander
- Seek to establish interoperability and open architecture standards and objectives for defense systems
- Leverage R&E knowledge and insights to advise and inform the DoD enterprise on risks posed by our adversary’s access to technology

Specific Goals

We can play a key, neutral role in rationalizing requirements to lower cost

- Review capability and gap areas for potential coordination and integration of Service and Agency programs
- Evaluate the potential to join Army and Marine Corps heavy truck development programs
- Evaluate the potential to join Army and Marine Corps ground radar development programs

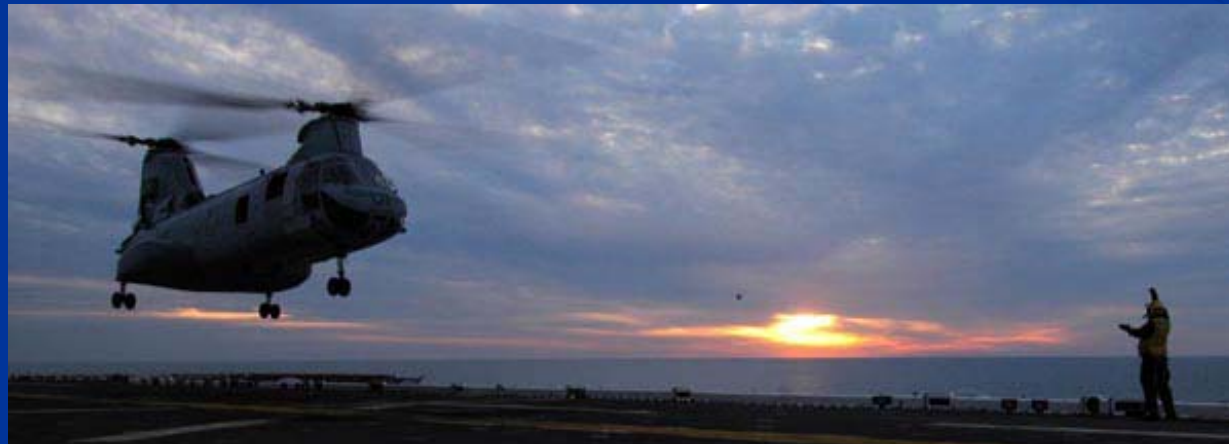


The Defense Research & Engineering Team must LEAD THE DEFENSE, RESEARCH & ENGINEERING ENTERPRISE TO STRATEGIC BUSINESS SUCCESS.

- Drive the DoD research and development program to be a coherent, coordinated investment in the future
- Use data to drive S&T investment levels
- Use management tools to run the business
- Manage programs with metrics and execute like a lean business
- Promote innovation and accept risk to attain results
- Instill a culture which is open-minded and constantly conscious of jointness and interoperability
- Ensure that value and competition are foremost considerations in every program

The Defense Research & Engineering Team will **MANAGE THE R&D PROGRAM AS A LEAN BUSINESS ENTERPRISE**

- Continuously Remove Government Bureaucracy Barriers
- Establish performance and transition goals and metrics for evaluation and management of R&D programs
- Achieve return on investment by enabling transition of results to the warfighter
- Draw on the nation's intellectual capital to inform investment program decisions
- Ensure S&T investments retire technology risk prior to Milestone B
- Use technology to lower acquisition and life cycle cost



We will establish business goals and measure results

- Publish a DDR&E strategic plan aligned with Department guidance by April 2006
- Increase and coordinate the DoD investment in technology vector areas:
 - Counter Terrorism capabilities
 - Urban Operations capabilities
 - WMD detection and response capabilities
 - Transformational power and energy technologies
 - Manufacturing technologies
- Develop and maintain a detailed taxonomy of all current S&T programs with DoD strategic objectives and Joint Capability Areas (JCAs) by March 2006
- Define measurable metrics for technology programs and hold programs accountable for results
- Develop and sustain a persistent transition capability

We will invest the nation's capital efficiently and effectively

- Drive transition of technology to fielded capability through budget process changes, barrier identification and elimination, and oversight process changes
 - Guide S&T investments to support technology readiness maturation, alternate technology paths for priority acquisition programs, and transition of technology
 - Work with acquisition program managers to increase individual and composite Technology and Manufacturing Readiness Levels of their programs
 - Develop technologies that reduce demands on manpower, increase lethality, improve testing capabilities, and / or reduce logistics footprint
 - Significantly reduce the cost of weapons systems through the development and maturation of essential manufacturing processes and software generation technologies
- *The DOD Acquisition system, with its layers of authority and myriad rules and regulations needs to be simplified and streamlined.*
 - *We need to leverage our buying power through “Integrated Sourcing” and effective “Supply Chain Management”*
 - *We need to be able to deliver weapons systems on schedule and on budget.*



Secretary Gordon England

We will invest each tax dollar as if it were our own tax dollar

- Conduct a comprehensive S&T program review to align investments with strategic objectives by July 2006
- Stabilize the DoD research program based on high priority department strategic needs and emerging technical opportunities
- Leverage other government and industry technology investments
- Complete a review of surveillance and fire control architectures and associated sensors and weapons to achieve joint and interoperable weapons capability – take actions to achieve the goal of Any Sensor, Any Weapon



We will optimize the investments of all defense business units

- Look ahead at all future Milestone B ACAT decisions and determine if the R&D investments will deliver technology maturity, or options, at Milestone B
- Advocate and Emphasize Milestone A decisions as a tool to define the path to later DAB decisions
- Evaluate 6.3 and 6.4 programs to allow for near-term risk in areas where DoD is already dominant
- Evaluate and realign R&D efforts to balance near term risk with future risk
- Prepare current Military Critical Technology Program (MCTP) and use to guide technology protection and essential industrial base decisions



Guiding Principles

The Defense Research & Engineering Team will **COLLABORATE** and **DEVELOP PEOPLE** to strengthen the community

- Make transparency, openness and collaboration the characteristics of our respective neighborhoods
- Enable the delivery of results
- Play an appropriate stewardship role for the science and engineering community
- Recruit and hire people that can become the next leaders
- Lead the honest and ethical conduct of our activities
- Ensure the work environment allows all to participate productively – harassment, discrimination, and unethical behavior will not be tolerated



We cannot as individual residents or discrete families achieve the goals of the greater community unless we collaborate.

The Defense Research and Engineering Team will CHAMPION THE NATION'S R&E ENTERPRISE

- Promote the value of science and technology to the National Security Posture of the United States
- Emphasize the value of a robust Basic Research investment to generate new knowledge and capabilities
- Maintain a relevant and robust R&D program that attracts young scientists and engineers to work for DoD
- Act to sustain and grow a robust, highly capable national technical capability
- Provide performance feedback to shape enterprise outcomes



We will invest in people to sustain the nation's technical edge

- Grow the National Defense Education Program (NDEP)
- Establish efforts to promote RDT&E and defense awareness at the pre-college level
- Expand the use of internship programs to attract and hire young scientist and engineers
- Investigate expanded use of flexible retention practices to retain retiree knowledge
- Provide the tools necessary for a 21st century technical workforce



People are our greatest resource

- Lead and manage to maximize the talents and performance of each person to achieve sound business results; support military, civilian, and contractor personnel
- Improve outcomes by developing an AT&L Performance Management Construct and Culture, and Deploying Enabling Leadership Initiatives
- Identify actions to build and sustain a high performance workforce
- Manage workload and personnel resources: recruit, hire, train, retain, qualified personnel



We will use new personnel tools to measure and recognize motivated performance and results

- Participate in comprehensive AT&L workforce capability analysis
- Contribute to AT&L Human Capital Plan publication within 120 days of QDR
- Develop data driven retention and recruiting strategies
- Successfully deploy AT&L Performance Management Culture
- Complete AT&L transition to new DoD SES pay-for-performance initiative by 30 June 06 – Deploy training and workforce support
- Appropriate training completed for all AT&L senior executives
- Support DoD planning and schedule for the transition to NSPS by facilitating AT&L's ability to move to a performance management culture
- Deploy initial phases of AT&L 360 degree leadership initiative and make a full deployment decision by 30 Sept 06

I ask you to be a difference maker.

My request to you is . . .

- I expect every R&E Team Member to recreate the message I have shared with you regarding this source document in your respective organizations until it takes on a life of its own
- I expect you to engage your people in a dialogue about the vision, goals, guiding principles and methodologies you have heard today, and how they can apply them in their jobs
- I expect your commitment in taking the key initiatives we have discussed today and sourcing them in your organization
- You can expect that I will follow up on these soon

In conclusion:

I frequently view the work of the acquisition team as paving a path, one brick at a time, that will provide us with the means to strike anyone, anywhere, and at any time. You can't just lay one brick – and each member of the team has a chance each day to lay new bricks. You have to lay a lot of bricks — ships, planes, weapons, sensors, communications, and networks that connect everything, and more importantly, changes in how we do business. The result is we together pave a path that represents a superhighway to the future. We can't see all of the terrain ahead of us, but the right bricks in combination will provide the tools necessary to preserve the nation's future freedom and empower the men and women who serve America.

John Young, Assistant Secretary of the Navy, Jan 1, 2004