

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603161D8Z - Nuclear & Conventional Phys Sec Equip						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P162 Nuclear & Conventional Phys Sec Equip	48.239	49.882	36.019					

A. Mission Description and Budget Item Justification:

The purpose of this program is the advanced engineering development of conventional and nuclear physical security equipment (PSE) systems for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for continuing and evolving individual Service and joint PSE requirements that provide capability in the areas of force protection and tactical security equipment; robotic security systems integration; waterside security systems; explosive detection equipment; locks, safes and vaults; commercial-off-the-shelf (COTS) testing; and nuclear weapons security. Many RDT&E efforts arising from this PE will transition to PE 604161D8Z for system demonstration and validation. The PSE program is organized so that representatives from the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) monitor, direct and prioritize potential and existing PSE programs through the auspices of the Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-Service application. This program element supports: 1) the Army's PSE RDT&E efforts in the areas of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units; 2) the Air Force's PSE RDT&E efforts in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion; 3) the Navy's PSE RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults; and 4) DTRA's PSE RDT&E efforts that enhance the security of Navy and Air Force nuclear assets. This PE also funds Force Protection Commercial-Off-The-Shelf (FP COTS) evaluation and testing, which has received additional focus since the 1996 Khobar Towers terrorist bombing incident. The FP COTS testing applies to all available technologies that are considered effective for DoD physical security use.

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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	49.131	38.758	39.913	
Current BES/President's Budget (FY 2010)	48.239	49.882	36.019	
Total Adjustments	-0.892	11.124	-3.894	
Congressional Program Reductions				
Congressional Rescissions		-0.276		
Congressional Increases		11.400		
Reprogrammings				
SBIR/STTR Transfer	-0.797			
Other	-0.095		-3.894	

The PB 2010 submission accommodates the maturation of PSE developmental items from advanced engineering development (BA #4) to system development and demonstration (BA #5). PE 604161D8Z identifies the offset.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
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Comment:

The program performance metrics are established/approved through the DoD Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG and SPVC meetings. Performance variances are addressed and corrective action is implemented as necessary.

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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
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B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Force Protection/Tactical Security Equipment (FP/TSE):	18.832	16.083	12.659

FY 2008 Accomplishments:

- Began Light Kit, Motion Detection (LKMD) Prototype Design, Fabrication, and Integration of 40 prototype systems.
- Developed an enhanced Command and Control Display Element (CCDE) for Physical Security Systems.
- Developed the software to support the Common Operational Picture.
- Conducted Combined Test Force Evaluation of Phase IV development of the Remote Detection and Tracking System (RDTS).
- Continued to integrate Identify Friend or Foe (IFF) with radar detection systems.
- Continued to seek a solution for a automated installation access control system maintenance and sustainment.
- Continued to seed an appropriate interface between an automated installation access control system and a database management systems.
- Completed Light Kit, Motion Detection (LKMD) product qualification testing (PQT1).
- Initiated the critical design review (CDR) for the LKMD.
- Evaluated two COTS Protected Distribution Systems (PDS) against forced entry.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
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<p>- Continued to manage sensor and assessment product developments and tests.</p> <p>- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.</p> <p>- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.</p> <p>- Executed a congressional add to continue the development of the Intelligent Design Exploration effort.</p> <p>- Executed a congressional add to develop an Integrated Base Defense Operation Planning Process.</p> <p>FY 2009 Plans:</p> <p>- Develop a Trip Wire Sensor.</p> <p>- Develop an improved active infrared detection system.</p> <p>- Complete LKMD PQT2.</p> <p>- Continue spiral development of the Aircraft Self-Protection System (ASPSS).</p> <p>- Continue spiral development of the Tactical Automated Security System (TASS).</p> <p>- Continue spiral development of automated base access control systems.</p> <p>- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.</p> <p>- Continue to manage sensor and assessment product developments and tests.</p> <p>- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.</p> <p>- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.</p> <p>- Execute a congressional add that continues the development of the Intelligent Design Exploration effort.</p> <p>FY 2010 Plans:</p> <p>- Conduct LKMD early user appraisals (EUA).</p> <p>- Approve Milestone Decision C for full rate production (FRP) of the LKMD.</p> <p>- Approve the Aircraft Self-Protection Security System (ASPSS) as a fly-away system for USAF security forces.</p> <p>- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.</p> <p>- Continue to manage sensor and assessment product developments and tests.</p> <p>- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.</p> <p>- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.</p>						
<u>Accomplishments/Planned Program Title:</u>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;"><u>FY 2008</u></td> <td style="width: 25%; text-align: center;"><u>FY 2009</u></td> <td style="width: 25%; text-align: center;"><u>FY 2010</u></td> <td style="width: 25%;"></td> </tr> </table>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>				

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Robotic Security Systems Integration (RSSI):	5.810	11.630	1.000
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FY 2008 Accomplishments:

- Continued to integrate remote weapon systems with robotic platforms.
- Completed the Force Protection Aerial Surveillance System (JFASS) web-based training and simulation certification.
- Transitioned FPASS web-based Trainer and system to USAF.
- Continued the development of networked remotely operated weapons.
- Continued to develop, test, evaluate, and modify Multi-robot Operator Control Unit/Unmanned Aerial Vehicle (MOCU/UAV) interface.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continued to test, develop, and integrate equipment to improve robotic integration capability.
- Executed a congressional add to continue the development of the Digital Network Centric Remotely Operated Weapon System.
- Executed a congressional add to continue the development of the Integrated High Activity Response System.

FY 2009 Plans:

- Conduct a live-fire demonstration of remotely operated weapon systems (ROWS).
- Collaborate on Human Presence sensor integration and testing on robotic platform in exterior environment to refine hardware and algorithms.
- Demonstrate Networked Remotely Operated Weapon System (NROWS) detecting and tracking multiple targets under various control scenarios.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security robotic integration capability.
- Develop a (NROWS) detecting and tracking multiple targets under various control scenarios.
- Execute a congressional add that supports the Camp Guernsey Joint Training and Experimentation Center.

FY 2010 Plans:

- Study the integration of robotic systems in nuclear physical security efforts.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.

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- Continue to test, develop, and integrate equipment to improve security robotic integration capability.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Waterside Security System (WSS):	3.250	3.290	1.550	

FY 2008 Accomplishments:

- Continued to explore opportunities to develop a viable non-lethal means to neutralize swimmer threats.
- Further developed brassboard WSS prototypes transitioned from concept development.
- Initiated the redesign of existing radar track processor.
- Continued to develop and integrate a prediction tool into the AN/WQX-2 ADCAP (advanced capability) processor.
- Began the development of a passive sonar with enhanced diver detection classification and localization (DCL) and engagement capability.
- Supported an Expeditionary Waterside Security - JCTD by integrating the Tactical Integration Sensor (TIS) with the Tactical Automated Security System (TASS).
- Demonstrated connectivity from the Integrated Swimmer Defense (ISD) system to the Tactically Integrated Sensors (TIS).
- Redirected integration efforts into an Integrated Swimmer Defense effort that provides a swimmer interface with the Joint Force Protection Advanced Security System Joint Capabilities Technical Demonstration (JFPASS JCTD).
- Continued to develop an overwater detection capability for the Remote Detection and Tracking Sensor (RDTS).
- Examined the feasibility of fusing data from sonar systems which have more than one sonar head.
- Conducted a study to get a better understanding of the source of sonar nuisance alerts.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have Physical Security Equipment (PSE) utility.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Continue to develop integrated anti-swimmer defense and detection capability.
- Continue to improve algorithms that provide target analysis of waterborne threat.
- Continue the development of a passive sonar with enhanced diver detection classification and localization (DCL) and engagement capability.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.

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- Continue to manage sensor and assessment product developments and tests.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2010 Plans:

- Develop single sonar system that works in the active and passive modes.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Explosive Detection Equipment (EDE):	6.394	4.300	2.750	

FY 2008 Accomplishments:

- Continued to invest in the development of a viable technology to provide a stand off explosive detection capability against Improvised Explosive Devices (IEDs).
- Added a capability for R/SEDS to detect obscurants material that may shield the detection of explosives.
- Conducted comparative testing of commercial and developmental explosive detection devices.
- Conducted operational testing and evaluation (OT&E) of R/SEDS.
- Determined the feasibility of using Computed Tomography (CT) X-Ray technology to detect explosives.
- Continued the development of a long range TeraHetz (THz) explosive detection capability.
- Continued the development test and evaluation of mobile vehicle x-ray systems.
- Provided the DoD Military Working Dog (MWD) School with a plan for comparative testing of MWDs against Trace Detectors.
- Continued to refine the capability of Remote/Standoff Explosive Detection System (R/SEDS) to specifically identify types of explosives.
- Continued to seek a CT Scan algorithm for explosive detection.
- Awarded a contract to develop a representative prototype of a field-ruggedized, handheld, battery powered, THz spectrometer for use in military applications.
- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE/EDE utility.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.

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- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Develop a phosphor plate detector for a Computed Tomography (CT) Explosive Scanner.
- Upgrade and test the CT Scanner algorithms.
- Develop a 650 gigahertz (GHz) source for teacher imaging.
- Continue to explore TeraHertz technology in academia and the National Labs.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE/EDE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.
- Continue to manage, develop, evaluate and test explosive detection products and systems.
- Execute a congressional add to develop a Terahertz High-Resolution Portable Explosives Detector.

FY 2010 Plans:

- Complete testing of handheld trace and bulk explosive detection systems.
- Develop and test XD4 prototypes.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE/EDE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.
- Continue to manage, develop, evaluate and test explosive detection products and systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Locks, Safes, Vaults:	1.731	1.750	4.760	

FY 2008 Accomplishments:

- Incorporated ILD design improvements that will increase operational capability and improve resistance against forced entry.
- Integrated and automated locking systems into other support systems.
- Began OT&E of Storage Magazine door redesign.
- Developed, prototyped and tested DoD/GSA shipboard security containers.
- Planned and executed the 2008 Seals Symposium.

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- Integrated the Internal Locking Device (ILD) identity verification capability software.
- Continued to manage, develop, evaluate, and test Delay/Denial products.
- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security of facilities.

FY 2009 Plans:

- Begin Low Rate Initial Production (LRIP) of redesigned storage magazine doors.
- Coordinate and support the installation of redesigned storage magazine doors.
- Continue field support program.
- Conduct force and surreptitious entry testing of Protected Distribution System lockboxes and manhole cover locks.
- Continue to develop ILD with biometrics/identity verification capability.
- Continue to manage, develop, evaluate, and test Delay/Denial products.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security of facilities.

FY 2010 Plans:

- Assess magazine structure vulnerability and upgrade the structure design.
- Integrate ILDs with Class 5 vault doors.
- Continue to manage, develop, evaluate, and test Delay/Denial products.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security of facilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Nuclear Weapon Physical Security:	9.994	10.579	11.100	

FY 2008 Accomplishments:

- Continued to develop a fully functioning, interactive, 3D view client workstation for the Joint Conflict and Tactical Simulation (JCATS) software.

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- Continued to develop systems to prevent unauthorized access to submarines while located at pier side and in dry dock.
- Continued to enhance the Navy's Marine Mammal System (MMS) by further development of the Limpet Mine Detection capability and the Optimizing the Vigilance of the MMS.
- Developed a technical solution that provides the ability to remotely visually assess (RVA) alarms at remote critical facilities.
- Continued to assess alternative solutions for a risk management tool that uses modeling and simulation software.
- Continued to build algorithms that model terrorist attacks against critical resources.
- Continued developmental testing of modeling and simulation software.
- Continued to fabricate access denial system prototypes.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Conduct JCATS operational assessment and acceptance testing.
- Release JCATS to the user community.
- Continue to enhance AVERT software as a possible solution for a risk management tool.
- Examine the feasibility of using voice over internet protocol (VoIP) to support RVA communications requirements.
- Continue testing high explosives against re-enforced concrete panels and testing mechanical couplers at high strain rates.
- Develop a risk management tool for nuclear weapons physical security.
- Support the retrofit of Storage Magazines.
- Continue to adapt weapons intercept technology to provide protection of nuclear weapons facilities.
- Continue to test and evaluate access denial systems.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

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FY 2010 Plans:

- Add a 3-D view to the JCATS after action review tools in order to better understand the JCATS simulation results.
- Solve Virtual Presence Extended Detection communications concerns for a more robust extended detection system.
- Conduct cost/benefit analysis fo alternative designs for reinforced concrete panels.
- Continue to adapt weapons intercept technology to provide protection of nuclear weapons facilities.
- Continue to test and evaluate access denial systems.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to research technological advances within industry; at DARPA; DoD, DoE, and University Labs; etc., that have PSE utility.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Commercial-Off-The-Shelf (COTS) Testing:	2.228	2.250	2.200

FY 2008 Accomplishments:

- Continued to seek near-term (commercial) solutions for immediate force protection needs.
- Conducted qualification testing of the MicroTrack Buried Cable Sensor, the OminTrax Buried Cable Sensor and interior sensors.
- Continued the environmental and human health assessment of COTS Oleroresin Capsicum (OC) pepper spray conister inserts for the TigerLight.
- Continued to seek near-term (commercial) solutions for immediate force protection needs.
- Planned FPED VII.
- Test the Laser Breakbeam Sensor.
- Continue qualification testing of various commercial intrusion detection sensors.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Execute FPED VII.

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- Continue qualification testing of various commercial intrusion detection sensors.
- Continue to seek near-term (commercial) solutions for immediate force protection needs.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2010 Plans:

- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0603161D8Z - Nuclear & Conventional Phys Sec Equip							P162				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Force Protection/Tactical Security Equipment (FP/TSE)	MIPR	PM-FPS (USA), Ft. Belvoir, VA	4900	4200	1Q	5000	1Q	5000	1-2Q					
Force Protection/Tactical Security Equipment	MIPR	642nd ELSS (USAF), Hanscom AFB, MA	4290	4200	1Q	5000	1Q	6864	1-2Q					
Force Protection/Tactical Security Equipment	MIPR	DTRA, Ft. Belvoir, VA	700	1750	1Q	1985	1Q							
Congressional Add for INDEX (FP/TSE)	MIPR	NAVSEA Crane, IN	1600	5500	1Q	3600								
Robotic Security Systems Integration (RSSI)	MIPR	DTRA, Ft. Belvoir, VA	397											
Robotic Security Systems Integration (RSSI)	MIPR	PM-FPS (USA), Ft. Belvoir, VA	3	1020	1Q	2030	1Q	1000	1-2Q					
Congressional Add for INHARS (RSSI)	MIPR	AFRL, Tyndall AFB, VA	2600	4000	2Q									
Congressional Add for Pacific Tech (RSSI)		SPAWAR, San Diego, CA				1000	1-3Q							
Congressional Add for Digital ROWS (RSSI)	MIPR	PM-FPS (USA), Ft. Belvoir, VA	1000	1000	2Q									
Congressional Add for Camp Guernsey (RSSI)	MIPR	6000				6000	1-3Q							
Congressional Add for the Integrated Base Defense Operation Planning Process	MIPR	AFRL, Tyndall AFB, VA		1000	2Q									
Waterside Security	MIPR	NSWC, Crane, IN	1600	3250	1Q	3290	1Q							
Waterside Security	MIPR	NUWC, Newport, RI						1550	1-2Q					
Congressional Add for Terahertz	MIPR	NAVEODTECHDIV, Indian Head, MD				800								
Explosive Detection Equipment	MIPR	NAVEODTECHDIV, Indian Head, MD	3210	5500	1Q	3500	1-2Q	2750	1-2Q					
Explosive Detection Equipment	MIPR	PM-FPS (USA), Ft. Belvoir, VA	315				1Q							

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0603161D8Z - Nuclear & Conventional Phys Sec Equip							P162				
Explosive Detection Equipment	MIPR	DTRA, Ft. Belvoir, VA	800											
Locks, Safes, and Vaults	MIPR	NFESC, Port Hueneme, CA	1383	1700	1Q	1750	1Q	3500	1-2Q					
Nuclear Weapons Physical Security	MIPR	DTRA, Ft. Belvoir, VA	4500	9327	1Q	9822	1Q	10000	1-2Q					
Nuclear Weapons Physical Security	MIPR	SSP, Arlington, VA	3750											
Subtotal:			31048	42447		43777		30664						
II. Support Costs														
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation														
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Explosive Detection Equipment	MIPR	642nd ELSS, Hanscom AFB, MA	870											
COTS Testing	MIPR	PM-FPS (USA), Ft. Belvoir, VA	2247	2228	1Q	2250	1Q	2200	1-3Q					
Subtotal:			3117	2228		2250		2200						
IV. Management Services														
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Force Protection/Tactical Security Equipment	MIPR	642nd ELSS (USAF) , Hanscom AFB, MA	2047	1839	1-2Q	2400	1-2Q	1800	1-2Q					
Force Protection/Tactical Security Equipment		DATSD (Nuclear Matters)	1400	600	1-3Q									
Waterside Security	MIPR	NAVSEA (Navy) Arlington, VA	517	500	1-2Q	600	1-2Q	500	1-2Q					
Locks, Seals, and Vaults	MIPR	NFESC (Navy), Port Hueneme, CA	390	350	1-2Q	455	1-2Q	355	1-2Q					
Nuclear Weapons Physical Security	MIPR	SPAWAR, Charleston, SC	345	275	1-2Q	400	1-2Q	500	1-2Q					

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE

0603161D8Z - Nuclear & Conventional Phys Sec Equip

PROJECT

P162

Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
Identify FPED VII vendors.																																
Identify FPED VII sponsors.																																
(1) Execute FPED VII																																
(2) Complete Light Kit, Motion Detection (LKMD) product qualification testing (PQT).																																
Integrate remote weapon systems with robotic platforms.																																
(4) LKMD Full Rate Production decision (Milestone C).																																
(5) Demonstrate NROWS detecting & tracking multiple targets under various scenarios.																																
Leverage WSS efforts in support of SSBNs.																																
Limited Production of Optimized door within the Magazine Access Denial program.																																
(6) Integrate the Navy's TIS with USAF's TASS.																																
Design Handheld THz Spectrometer.																																
Fully integrate biometrics with the ILD.																																
Model all nuclear weapons facilities using the AVERT Risk Management Tool.																																

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT	
4 - Advanced Component Development and Prototypes (ACDP)		0603161D8Z - Nuclear & Conventional Phys Sec Equip						P162	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>						
Identify FPED VII vendors.	4Q	1Q - 2Q							
Identify FPED VII sponsors.	2Q - 4Q								
Execute FPED VII		3Q							
Complete Light Kit, Motion Detection (LKMD) product qualification testing (PQT).	4Q	1Q							
Integrate remote weapon systems with robotic platforms.	1Q - 4Q	1Q - 4Q	1Q - 4Q						
Demonstrate NROWS capability to detect and track multiple targets.		1Q							
LKMD Full Rate Production decision (Milestone C).		4Q							
Demonstrate NROWS detecting & tracking multiple targets under various scenarios.	1Q - 4Q	1Q - 2Q							
Leverage WSS efforts in support of SSBNs.	1Q - 4Q	1Q - 4Q	1Q - 4Q						
Limited Production of Optimized door within the Magazine Access Denial program.	4Q	1Q - 4Q	1Q - 4Q						
Integrate the Navy's TIS with USAF's TASS.		1Q - 2Q							
Design Handheld THz Spectrometer.		1Q - 4Q							
Fully integrate biometrics with the ILD.	4Q	1Q - 4Q							
Model all nuclear weapons facilities using the AVERT Risk Management Tool.	4Q	1Q - 3Q							

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603228D8Z - Physical Security						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P228 Physical Security	1.541	0.000	0.000					

A. Mission Description and Budget Item Justification:

This program transitioned to program elements (PEs) 603287F and 604287F in FY 2004 and eventually to PEs 603161D8Z and 604161D8Z in FY 2007. This PE was funded in FY 2006 and FY 2008 with congressional increases. The purpose of this program is to develop physical security equipment (PSE) systems for Physical Security and Force Protection capabilities. Changing operational missions and evolving threats to warfighting assets and personnel dictate the advanced development of physical security equipment. This is a continuing process. As the political, social and economic landscape of the world undergoes change, so do operational security requirements pursuant to the protection of the forces and assets deployed around the world. To meet emergent DoD challenges and to support security requirements, the PSE program adapts, evaluates and tests equipment to meet the needs of the security force. In addition to the cost/benefit analysis that each R&D effort undergoes, each project is further evaluated relative to size, weight, deployability, operational environment, and logistical life cycle. Activities include systems engineering, system architecture design, interoperability, logistics planning, and test and evaluation of a variety of PSE systems, to include Waterside Security Systems.

Any continued development will be accomplished through PE 0603161D8Z and PE 0604161D8Z.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603228D8Z - Physical Security
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	1.589	0.000	0.000	
Current BES/President's Budget (FY 2010)	1.541			
Total Adjustments	-0.048			
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.045			
Other	-0.003			

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

The program performance metrics are established/approved through the DoD Physical Security Equipment Action Group (PSEAG). The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG meetings. Performance variances are addressed and corrective action is implemented as necessary.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603228D8Z - Physical Security					PROJECT P228	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P228 Physical Security	1.541	0.000	0.000					

A. Mission Description and Budget Item Justification:
 This program transitioned to program elements (PEs) 603287F and 604287F in FY 2004 and eventually to PEs 603161D8Z and 604161D8Z in FY 2007. This PE was funded in FY 2006 and FY 2008 with congressional increases. The purpose of this program is to develop physical security equipment (PSE) systems for Physical Security and Force Protection capabilities. Changing operational missions and evolving threats to warfighting assets and personnel dictate the advanced development of physical security equipment. This is a continuing process. As the political, social and economic landscape of the world undergoes change, so do operational security requirements pursuant to the protection of the forces and assets deployed around the world. To meet emergent DoD challenges and to support security requirements, the PSE program adapts, evaluates and tests equipment to meet the needs of the security force. In addition to the cost/benefit analysis that each R&D effort undergoes, each project is further evaluated relative to size, weight, deployability, operational environment, and logistical life cycle. Activities include systems engineering, system architecture design, interoperability, logistics planning, and test and evaluation of a variety of PSE systems, to include Waterside Security Systems.

Any continued development will be accomplished through PE 0603161D8Z and PE 0604161D8Z.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Waterside Security Systems (WSS)	1.541	0.000	0.000

FY 2008 Accomplishments:
 - Executed the Congressional Add to develop a Shipboard Visitor Control Center.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0603527D8Z - Retract Larch

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
527 Retrach Larch	22.129	22.819	21.718				

A. Mission Description and Budget Item Justification:

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603527D8Z - Retract Larch
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	22.172	22.945	23.508	
Current BES/President's Budget (FY 2010)	22.129	22.819	21.718	
Total Adjustments	-0.043	-0.126	-1.790	
Congressional Program Reductions				
Congressional Rescissions		-0.126	-0.279	
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other	-0.043		-1.511	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603527D8Z - Retract Larch					PROJECT 527	
	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
COST (\$ in Millions)								
527 Retract Larch	22.129	22.819	21.718					

A. Mission Description and Budget Item Justification:
 This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP.

B. Accomplishments/Planned Program: Not Applicable.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0603709D8Z - Joint Robotics Program

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P709 Joint Ground Robotics Enterprise (JGRE) ACD&P	23.251	11.782	11.803				

A. Mission Description and Budget Item Justification:

(U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies beyond Budget Activity 3 (PE 0603711D8Z) for technology transition and transformation to close warfighter requirement capability gaps. By exercising its oversight role through a technology advisory board, senior military Council and Senior Steering Group (Flag level), Joint Ground Robotics applies this PE to enable coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE funds efforts to overcome technology barriers in thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The purpose is to further the fielding of a family of affordable and effective mobile ground robotic systems, develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. This PE funds unmanned ground system technologies and supports the integration of technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedites technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighter's capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603709D8Z - Joint Robotics Program
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	23.654	11.847	12.005	
Current BES/President's Budget (FY 2010)	23.251	11.782	11.803	
Total Adjustments	-0.403	-0.065	-0.202	
Congressional Program Reductions				
Congressional Rescissions		-0.065		
Congressional Increases				
Reprogrammings	-0.039			
SBIR/STTR Transfer	-0.318			
Other	-0.046		-0.202	

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010					
PE 0603711D8Z (BA3) Joint Robotics/Autonomous Systems	19.585	8.449	9.110					
PE 0604709D8Z (BA5) Joint Ground Robotics Enterprise (JGRE) SDD	6.851	5.725	5.127					

Comment:

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603709D8Z - Joint Robotics Program				PROJECT P709	
	COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate			
P709	Joint Ground Robotics Enterprise (JGRE) ACD&P	23.251	11.782	11.803			

A. Mission Description and Budget Item Justification:

(U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies beyond Budget Activity 3 (PE 0603711D8Z) for technology transition and transformation to close warfighter requirement capability gaps. By exercising its oversight role through a technology advisory board, senior military Council and Senior Steering Group (Flag level), Joint Ground Robotics applies this PE to enable coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE supports the effort to overcome technology barriers in thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The purpose is to further the fielding of a family of affordable and effective mobile ground robotic systems, develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. Through application of funds against the thrust areas of unmanned ground system technologies, in execution this PE supports the integration of technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedites technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighter's capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

All actions under this PE are within BA 4 and are identified with one project number.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Autonomous & Tactical Behaviors and (U) Collaborative Operations	8.173	4.120	4.200

FY 2008 Accomplishments:

- * Demonstrated Autonomous Geo-physical survey using Unmanned Ground Vehicles, decreasing time to survey and compile the data (Autonomous Range Clearance).
- * Integrated the Robotic Intelligence Kernel (RIK) Kalman Filter for improved use of visual odometry in navigation.
- * Integrated local world map for improved obstacle avoidance.
- * Conducted user demonstrations of first-generation system for Automatic Payload Deployment System (APDS).
- * Demonstrated robotic ground refueling of an aircraft via simulation and completed state-of-the-art market survey on aircraft ground refueling and robotic equipment and components for potential use in autonomous refueling.
- * Selected platform for robotic firefighting proof of concept vehicle; defined requirements, selected firefighting system components and completed system design (Autonomous Firefighting).
- * Designed marsupial platform using modified SEGWAY units as the foundation and the build of autonomous navigation payload (Marsupial for Autonomous perimeter Security and Unexploded Ordnance)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0603709D8Z - Joint Robotics Program

PROJECT
P709

- * Identified most promising stereo-based solution proven for pedestrian detection and tracking.
- * Completed technology assessment in areas of long range non line-of-sight communications, extended power duration fuel cells, hybrid engine systems, mobile platforms, and ISR sensors (Man-Portable ISR Robot).
- * Developed JAUS software development kits to allow non-compliant hardware to more easily integrate into a JAUS compliant system.
- * Developed a JAUS compliant Chemical Biological Radiological and Nuclear (CBRN) sensor package for any JAUS compliant robot platform (CBRN Package for Unmanned Ground & Aerial Vehicles).
- * Produced second-generation Automatically Deployable Communications Relays (ADCR) systems.
- * Selected JAUS compatible robot platform and CBRN sensor package that will be integrated (CBRN for UGV & UAS).
- * Integrated JAUS into Simulation Systems for experimentation/validation.
- * Initiated research to extend the dynamic discovery of JAUS, supporting UAV and UGV collaborations.
- * Algorithm development, implementation and testing for precision landing of the Rotomotion UAV utilizing a NovAtel Differential Global Positioning System (DGPS).
- * Initiated effort to integrate & fuse data from a variety of sensors, imagers, access control, robotic platforms and IFF systems to more effectively execute defensive battle space actions.
- * Continue integration of JAUS into Simulation Systems for experimentation/validation.
- * Continued efforts to determine and identify Mission Essential Modules to improve COTS system multi-mission capability.
- * Demonstrated ability to extend Non-Line-of-Sight operator control of UGVs up to 20 miles through use of a communications repeater integrated onto a UAV
- * Developed a Phase I user interface for UAV/UGV range extension operations that allow the operator to view optimal communications regions for uninterrupted telemetry and control
- * Convoy following operations: Designed infrared targets to be placed on the lead vehicle ; fabricated 1st target prototypes; developed algorithm to determine the location of the lead vehicle relative to the follower based on the sensed infrared targets; Performed initial testing of system to evaluate the accuracy of the sensed lead vehicle location ; new target design initiated to improve tracking performance; Developed algorithm to determine the location of the lead vehicle relative to the follower based on the sensed infrared targets; Performed initial testing of system to evaluate the accuracy of the sensed lead vehicle location.

FY 2009-2010 Plans: Support the development of vehicle onboard intelligence and tactical behaviors to allow the fielding of advanced autonomous unmanned systems. Including integration and testing of specific tactical behaviors for fielded EOD robots. Improve performance of and reduce computational load for small UGVs by integration of reduced size and weight sensors. Baseline user identified mission scenarios to develop operational behaviors enabling unmanned operations within the conduct of mission tasks. Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the autonomy and functional capabilities of current and future robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Integrate communication, mission planning, interface technologies, and advanced intelligence capabilities to support collaborative operations between manned and unmanned systems. Develop and assess several strategies to enhance tele-operation of current UGVs and collaborative UAV teams, including unmanned system collaboration demonstrations. Collaborative and tactical behaviors include system convoying, teamed obstacle avoidance, area perception and relative position information sharing. Plans include:

- * Autonomous Navigation for Small UGVs

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603709D8Z - Joint Robotics Program	PROJECT P709
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- * Automated Aircraft Refueling
- * Mine Area Clearance Equipment Development/Autonomous Range Clearance
- * Chemical Biological Radiological & Nuclear (CBRN) Package for Unmanned Ground & Aerial Vehicles
- * Robotic Firefighting Technologies
- * Automatic Payload Deployment System (APDS) - UGV
- * Human Presence Detection (HPD)
- * Convoy Active Safety Technologies (CAST)
- * Joint Training and Experimentation Center (JTEC)
- * Covert tracking robots/ sensors
- * Marsupial (SEGWAY) for APS and UXO
- * Automatically Deployed Communications Relays (ADCR)
- * Joint Collaborative Technologies Experiment (JCTE)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
(U) Interoperability	4.829	2.628	2.500	2.570

FY 2008 Accomplishments:

- * Demonstrated integrated capabilities in support of Force Protection Joint Experiments Integration Assessments (FPJEIA).
- * Developed software required for payload operation, began assembling payload package; began payload and platform control development (Autonomous Firefighting).
- * Continued to refine, maintain for and transition of documentation for Joint Architecture for Unmanned Systems (JAUS) to a Society of Automotive Engineers (SAE) standard.
- * Completed transition of JAUS to a Society of Automotive Engineers (SAE) standard.
- * Under the Automatic Payload Deployment System (APDS) conducted user demonstrations of first-generation system; generated feedback for further payload development.
- * Under the Automatically Deployable Communications Relays (ADCR) effort, continued testing on complete system.

FY 2009-2010 Plans: Promote and guide technology development to meet joint requirements and promote ground as well as air unmanned systems interoperability. Support the bridging of currently incompatible robots and controllers from various manufacturers, using different communications channels and hardware. Optimize best features of prior/ongoing research efforts into a maturing, standardized system that can be easily ported to robotic platforms used DoD-wide. Plans include:

- * Autonomous Control Development
- * Networked Robotic Communication Solutions
- * Robotic Systems Technical & Operational Metrics Correlation
- * Covert Tracking Robots/Sensors

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603709D8Z - Joint Robotics Program	PROJECT P709
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- * Autonomous Robotic Countermine (ARCS2)
- * Convoy Active Safety Technologies (CAST)
- * Joint Training and Experimentation Center (JTEC)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
(U) Man-Portable Unmanned Ground System Technologies and (U) Manipulation Technologies	5.584	3.785	3.900	3.946

FY 2008 Accomplishments:

- * Investigated varying technology approaches for human presence detection capable of meeting the size, weight, and power constraints of man-portable platforms.
- * Development/transition of technologies from Next Generation Explosive Ordnance Disposal Remote Control vehicle development.
- * Technology assessment in areas of long range non line-of-site communications, extended power duration fuel cells, hybrid engine systems, mobile platforms, and ISR sensors (Man-Portable ISR Robot).
- * Conducted Remote Ordnance Neutralization System (RONS) Continuous Improvement Program (CIP) projects.
- * Continued EOD Cooperative Robotics developments.
- * Continued automatically deployable communications relays (ADCR)efforts.
- * Continued development, fielding and life cycle development of systems deployed for IED defeat missions.
- * Investigated varying technology approaches for human presence detection capable of meeting the size, weight, and power constraints of man-portable platforms.
- * Conducted Military Utility Assessment on a Mobile Under Vehicle Inspection
- * Completed AEODRS Analysis of Alternatives Advanced EOD Robot System (AEODRS)/analysis of product family design requirements for the optimal EOD robot family/analysis for AEODRS control architecture state of the art.
- * Continued support of field use and development purposes, procured off-the-shelf small robots for loan to government agencies, laboratories, and universities for the purpose of accelerating the spiral development process, more quickly improving future robotic platforms for the joint warfighter.
- * Completed design, prototype development of General Mechanical interface to TAGS-CX (Battlefield Extraction - Assist Robot)
- * Completed first phase of BEAR characterization and operational simulation assessments at Soldier Battle Lab.
- * Supported limited objective experiments, feasibility demonstrations, and concept exploration projects.
- * Supported capability development via the Joint Architecture for Unmanned Systems (JAUS) development process.

FY 2009-2010 Plans: Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the functional capabilities of man-portable robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Specific technologies include obstacle detection/obstacle avoidance (ODOA) and collaborative behaviors for small vehicles. Incorporate existing technologies into systems representative to those in use, demonstrate ease of robotic manipulation, support the development of mobile manipulation, expedite the transition and integration of corresponding robotic technologies to enhance the current fielded systems with more functionalities, autonomy and state-of-the-art behavior with interface methods from the RTD&E environment. Plans include:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603709D8Z - Joint Robotics Program	PROJECT P709
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- * Man-Portable Intelligence, Surveillance, and Reconnaissance (ISR) Robot
- * Advanced Control Schemes for EOD Robotics/Advanced EOD Robot System Technology Development/3D Visualization for EOD UGVs
- * Automatically Deployable Communications Relays (ADCR)
- * Autonomous Navigation for Small UGVs
- * Joint Collaborative Technologies Experiment (JCTE)
- * Integration of Access and Forced Entry Tools on Small UGV
- * Autonomous Navigation for Small UGVs
- * Highly Dexterous EOD Manipulator Development
- * Joint Training and Experimentation Center (JTEC)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
(U) Technology Transition/Transformation	4.665	1.249	1.203	1.282

FY 2008 Accomplishments:

- * Integrated the Robotic Intelligence Kernel (RIK) Kalman Filter for improved use of visual odometry for navigation.
- * Developed a Technology Transition Agreement (TTA) for detection on the move (DOTM) for Mobile Detection Assessment Response System (MDARS) (Human presence Detection).
- * Continued to provide support to determine and identify Mission Essential Modules to improve COTS system multi-mission capability.
- * Established baseline information on taxonomy of international ground robotics development thrusts and key performers
- * Experimentation and testing of next-generation platform stabilization systems (Perfect Horizon)
- * Continued refined optimization of Simultaneous Localization and Mapping (SLAM) capabilities for outdoor applications in GPS-denied areas.
- * Supported development of mutiple size (75, 150, and 300 lbs) linear actuator version of the Perfect Horizon for stabilization of system payloads.
- * Initiated technology transfer efforts as part of a joint experiment initiative leading to support of the Joint Force Protection Advanced Security System (JFPASS) JCTD.
- * Continued transition of technologies from the NGEODRCV efforts.
- * Refined, maintained and completed final transition of documentation for Joint Architecture for Unmanned Systems (JAUS) to a Society of Automotive Engineers (SAE) standard.
- * Continued integrated experiment of ground and aerial platforms, continued development of automated ground targeting system and continued development of image feature extraction algorithms for UXO detection (Active Range Clearance).

FY 2009-2010 Plans: Facilitate integration of and ensure the ultimate transfer or transformation of technologies to ongoing programs. Including a Technology Demonstration for Advanced EOD Robot System (AEODRS). Exploit the best features of past and on-going efforts while supporting the development of technologies that have low risk to transition. Technologies of interest include: Interface Technologies (Human Robot Interaction), Autonomous Operations (Information Fusion, Perception, and Navigation), Autonomous Technologies (Positioning), and Platform Technologies. Plans include:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0603709D8Z - Joint Robotics Program

PROJECT
P709

- * Investigating advances in technology that focuses on the COCOM Homeland Defense Community - mission analysis and requirements investigation to identify technology gaps for future leverage of technology.
- * Continuing to pursue automatically deployed communications relays (ADCR) from unmanned ground vehicles.
- * Convoy Active Safety Technologies (CAST)
- * Automatic Sensor Deployment
- * Advanced EOD Robot System Technology Development - transition to program of record (POR)
- * Man-portable Robot Systems
- * Automated Aircraft Refueling
- * Autonomous Navigation for Small UGVs
- * Autonomous Robotic Countermine (ARCS2)
- * Joint Collaborative Technologies Experiment (JCTE)
- * Integration of Access and Forced Entry Tools on Small UGV
- * Joint Training and Experimentation Center (JTEC)

C. Other Program Funding Summary:	FY 2008	FY 2009	FY 2010					
PE 0603711D8Z (BA3) Joint Robotics/Autonomous Systems	18.734	9.198	9.110					
PE 0604709D8Z (BA5) Joint Ground Robotics Enterprise (JGRE) SDD	6.710	5.694	5.127					

Comment:

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0603709D8Z - Joint Robotics Program							P709				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Ground Robotics Enterprise			22651	23176	1-4Q	11682	1-4Q	11700	1-4Q					
Subtotal:			22651	23176		11682		11700						
Remarks:														
Funding value captures the total committed and obligated or planned for obligation across the PE. The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives: technology developemnt against the thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. This PE supports the need to integrate technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedite technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighter's capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Ground Robotics Enterprise Support			324	75	1-4Q	100	1-4Q	103	1-4Q					
Subtotal:			324	75		100		103						
Project Total Cost:			22975	23251		11782		11803						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0603709D8Z - Joint Robotics Program

PROJECT
P709

Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
(1) Advanced EOD Robot System	▲ ₁																															
(2) Automated Aircraft Refueling	▲ ₂																															
(3) Autonomous Navigation for Small UGVs	▲ ₃																															
(4) Battlefield Extraction-Assist Robot (BEAR)	▲ ₄																															
(5) CBRN Package for UGVs & UAVs	▲ ₅																															
(6) Man-portable ISR Robot	▲ ₆																															
(7) Modeling and Simulation for EOD Robot Tactics Development	▲ ₇																															
(8) Tactical Behaviors for EOD Robots	▲ ₈																															
(9) PACOM Warfighter Experiment (Cobra Gold)	▲ ₉																															
(10) Robotic Standards of Harmonization (JAUS)	▲ ₁₀																															
(11) Joint Collaborative Tech. Experiment	▲ ₁₁																															
(12) Robotic Sys. Tech & Operational Metrics Correlation	▲ ₁₂																															
(13) Guernsey								▲ ₁₃																								

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE

0603709D8Z - Joint Robotics Program

PROJECT

P709

<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Advanced EOD Robot System	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Automated Aircraft Refueling	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Autonomous Navigation for Small UGVs	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Battlefield Extraction-Assist Robot (BEAR)	1Q - 4Q	1Q - 4Q	1Q - 4Q					
CBRN Package for UGVs & UAVs	1Q - 4Q	1Q - 4Q						
Man-portable ISR Robot	1Q - 4Q	1Q - 4Q						
Modeling and Simulation for EOD Robot Tactics Development	1Q - 4Q	1Q - 4Q						
Tactical Behaviors for EOD Robots	1Q - 4Q	1Q - 4Q	1Q - 4Q					
PACOM Warfighter Experiment (Cobra Gold)	1Q - 4Q	1Q - 4Q						
Robotic Standards of Harmonization (JAUS)	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Joint Collaborative Tech. Experiment	1Q - 4Q	1Q - 4Q						
Robotic Sys. Tech & Operational Metrics Correlation	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Guernsey		3Q - 4Q	1Q - 3Q					
Consortium TAB		3Q - 4Q	1Q - 3Q					
Consortium Support		3Q - 4Q	1Q - 3Q					

Events are based on multitechnology development efforts, executed within and across program elements and technology development priorities established through the JGRE Technology Advisory Board (TAB), O-6 Council and Senior Steering Group (SSG) in support of Joint Capability Areas (JCA). All efforts under this PE are identified with one project number.

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009
Appropriation/Budget Activity RDT&E Defense-Wide, BA 4			R-1 Item Nomenclature: Advanced Sensor Applications Program PE 0603714D8Z
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
Total PE Cost	0	15.912	17.771
A. Mission Description and Budget Item Justification:			
<p>The program focuses on continued development of domestic technologies and assessment of foreign technologies that have demonstrated potential for improvements in U.S. capabilities. Unique and innovative approaches are used to expand the performance envelopes of existing systems. This program supports military requirements identified in Joint Vision 2010, the Defense Science and Technology Strategy, Full Spectrum Dominance and the Joint Warfighting Capability Objectives. This program is funded under Budget Activity 4, Demonstration and Validation because it supports advanced technology demonstrations that evaluate technology transition to operational use.</p> <p><u>Program Accomplishments and Plans:</u></p> <p>FY 2008 Accomplishments: N/A</p> <p>FY 2009 Plans: Mission Support \$15.912</p> <p>FY 2010 Plans: Mission Support \$17.771</p>			
B. Program Change Summary:			
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget	0	0	0
Current President's Budget	0	15.912	17.771
Total Adjustments			.
Congressional program reductions		-.088	
Congressional increases		16.000	
Department adjustments			17.771

Change Summary Explanation:

FY 2008: N/A

FY 2009: Congressional increase

FY 2010: Department increase

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Numbers of operational field demonstrations; actual/in-kind resource sharing differential among participating entities; numbers of studies produced; numbers of successful anomaly detections; numbers of false-positive results. Numbers of technology transfers.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603851D8Z - Environmental Security Technology Certification Program (ESTCP)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P514	38.769	38.691	31.613					

A. Mission Description and Budget Item Justification:

(U) This program demonstrates and validates the most promising innovative environmental technologies that target DoD's most urgent environmental needs. Technologies selected are projected to provide pay back of the investment through cost savings and improved efficiencies. The program responds to: (1) congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations are given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD environmental requirements.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603851D8Z - Environmental Security Technology Certification Program (ESTCP)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	38.860	31.600	32.031	
Current BES/President's Budget (FY 2010)	38.769	38.691	31.613	
Total Adjustments	-0.091	7.091	-0.418	
Congressional Program Reductions				
Congressional Rescissions		-0.213		
Congressional Increases		7.304		
Reprogrammings	0.462			
SBIR/STTR Transfer	-0.478			
Other	-0.075		-0.012	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

ESTCP solicits proposals from all DoD organizations, other Federal Agencies, and the commercial sector as well. Projects are selected based on an annual competitive process through reviews conducted by multi-agency review panels.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	DoD Environmental Requirements					

Comment:

Performance in this program is monitored at two levels. At the lowest level, each individual project is measured against technical and financial milestones on a quarterly and annual basis. At a program-wide level, progress is measured against DoD's environmental requirements and the demonstration and transition of technologies that address these requirements.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603851D8Z - Environmental Security Technology Certification Program (ESTCP)					PROJECT P514
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P514 Environmental Security Technology Certification Program (ESTCP)	38.769	38.691	31.613				

A. Mission Description and Budget Item Justification:
 (U) This program demonstrates and validates the most promising innovative environmental technologies that target DoD's most urgent environmental needs. Technologies selected are projected to provide pay back of the investment through cost savings and improved efficiencies. The program responds to: (1) congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations are given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD environmental requirements.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
ESTCP:	38.769		

(U) FY 2008 Accomplishments:

The focus of the program is on UXO detection and discrimination, cleanup; range and installation sustainment; and eliminating/reducing waste streams associated with DoD weapon systems.

- Continued 77 demonstration projects
- Reviewed and selected 35 new technologies for demonstration.
- Reviewed and select sites for demonstration of technologies.
- Prepared site-specific implementation plans
- Prepared sites and secure regulatory permitting
- Awarded demonstration testing and evaluation for selected technologies.

Details on all ongoing and completed ESTCP projects in FY2008 can be found at www.estcp.org

By Focus Area:

- Environmental Restoration: (\$12.610 million)
- Munitions Management: (\$9.742 million)
- Weapons Systems and Platforms: (\$8.950 million)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603851D8Z - Environmental Security Technology Certification Program (ESTCP)	PROJECT P514
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- Sustainable Infrastructure: (\$7.467 million)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
ESTCP:		38.691	31.613	

FY 2009 Plans:

Funds are programmed for investments in projects that address priority DoD environmental requirements. The focus of the program is on live site UXO discrimination demonstrations, addressing emerging and recalcitrant cleanup issues, range sustainment technologies, renewable energy and energy efficiency technologies for DoD installations, and reducing life cycle costs of DoD weapons systems by eliminating hazardous materials. Funds are primarily required to continue and complete ongoing investments. Thirty-two new demonstration projects selected through a competitive process and two Congressional directed projects will be initiated.

Investment by Focus Area for FY2009:

- Environmental Restoration: (\$11.836 million)
- Munitions Management: (\$8.156 million)
- Weapons Systems and Platforms: (\$12.035 million)
- Sustainable Infrastructure: (\$6.664 million)

FY 2010 plans:

Funds are planned for continued investment in projects that address priority DoD environmental requirements. Focused new investment topics are detailed at www.estcp.org

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

Acquisition Strategy: ESTCP solicits proposals from all DoD organizations and competes them with a multi-agency review panel. ESTCP solicits proposals from other Federal Agencies and the commercial sector as well. These are also competed using review panels.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0603851D8Z - Environmental Security Technology Certification Program (ESTCP)							P514				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Environmental Security Technology Certification Program			118312	38769		38691		31613						
Subtotal:			118312	38769		38691		31613						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			118312	38769		38691		31613						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0603851D8Z - Environmental Security Technology Certification Program (ESTCP)

PROJECT
P514

Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
FY08 In Progress Reviews			■																													
Develop FY09 Program		■	■	■																												
FY09 In Progress Reviews							■																									
Develop FY10 Program							■	■																								
FY10 In Progress Reviews																																

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0603920D8Z - SO/LIC Humanitarian De-mining							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
PE NAME SO/LIC Humanitarian De-mining P920	13.631	14.294	14.687					

A. Mission Description and Budget Item Justification:

The Humanitarian Demining Research and Development (HD R&D) program element develops, demonstrates and evaluates prototype demining systems for US forces and for indigenous, DoD supported, host nation conducted demining operations. The HD R&D Program focuses on development of technologies to improve the efficiency and safety of removing post-conflict landmines and UXO, which are a significant danger to U.S. forces performing peace and stability operations, as well as to civilians. The HD R&D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&D activity within DoD, particularly in the Army Night Vision Electronic Sensors Directorate (NVESD) Tactical Countermines mission area. Equipment capabilities are assessed by host nation demining partners in actual demining conditions. The program aims to improve existing technologies for: individual mine/UXO and minefield detection, wide area survey, mechanical mine/UXO and vegetation clearance, mine neutralization, individual soldier/deminer protection, detection of explosives in buried mines, verification of the presence of mines, marking and mapping of mines/minefields, post clearance quality assurance (QA), and individual deminer tools. Areas of emphasis are identified and validated at an annual Requirements Workshop held by the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (OASD SO/LIC). The Requirements Workshop involves representatives from the combatant commands and from mine affected nations. Under OASD SO/LIC, the HD R&D Program is a strong participant in the International Test and Evaluation Program (ITEP).

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	14.013	14.373	14.778	
Current BES/President's Budget (FY 2010)	13.631	14.294	14.687	
Total Adjustments	-0.382	-0.079	-0.091	
Congressional Program Reductions				
Congressional Rescissions	-0.090	-0.079		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.265			
Other	-0.027		-0.091	

Remarks:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE

0603920D8Z - SO/LIC Humanitarian De-mining

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Following a rapid prototyping strategy, the program emphasizes the use/modification of existing, commercially available items and components to build functional prototype equipment suited for humanitarian demining operations. This approach is required due to the immediate need for new demining technologies in the face of ongoing US forces and host nation citizen casualties in mine-affected countries. The program evaluates prototype equipment by acquiring it off-the-shelf from industry using competition to the maximum extent possible by leveraging ongoing countermining R&D efforts in other US and foreign R&D activities, and by taking advantage of extensive in-house fabrication capabilities at the Army's Night Vision and Electronic Sensors Division (NVESD).

E. Performance Metrics:

Comment: Humanitarian Demining - 0603920D8Z

Long Term Strategies: Obtain adequate funding to support critical shortfalls; prioritize proposals that are deemed acceptable and allocate funding accordingly; and establish outreach programs to leverage institutional knowledge and expertise.

Performance Indicator and Rating:

FY 2009 Target:

70% of currently funded research projects are completed on time and within budget

Complete scheduled R&D project tasks

Transition scheduled projects to user communities

Conduct annual Humanitarian R&D Program Requirements Workshop

FY 2010 Target:

70% of currently funded research projects are completed on time and within budget

Conduct annual Humanitarian R&D Program Requirements Workshop

Complete scheduled R&D project tasks

Transition scheduled projects to user communities

Basis of FY 2008 to Date Performance Rating: Currently the number of funded research projects are on track to be completed per the target.

Verification: The Humanitarian Demining Program performs program reviews and has oversight from OSD.

Validation: Completed R&D products increase the capabilities of the DoD to effectively perform demining missions.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA#		PE NUMBER AND TITLE 0603920D8Z - SO/LIC Humanitarian De-mining						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P920 SO/LIC Humanitarian De-mining P920	13.923	14.373	14.687					

A. Mission Description and Budget Item Justification:
 The Humanitarian Demining Research and Development (HD R&D) program element develops, demonstrates and evaluates prototype demining systems for US forces and for indigenous, DoD supported, host nation conducted demining operations. The HD R&D Program focuses on development of technologies to improve the efficiency and safety of removing post-conflict landmines and UXO, which are a significant danger to U.S. forces performing peace and stability operations, as well as to civilians. The HD R&D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&D activity within DoD, particularly in the Army Night Vision Electronic Sensors Directorate (NVEDS) Tactical Countermines mission area. Equipment capabilities are assessed by host nation demining partners in actual demining conditions. The program aims to improve existing technologies for: individual mine/UXO and minefield detection, wide area survey, mechanical mine/UXO and vegetation clearance, mine neutralization, individual soldier/deminer protection, detection of explosives in buried mines, verification of the presence of mines, marking and mapping of mines/minefields, post clearance quality assurance (QA), and individual deminer tools. Areas of emphasis are identified and validated at an annual Requirements Workshop held by the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (OASD SO/LIC). The Requirements Workshop involves representatives from the combatant commands and from mine affected nations. Under OASD SO/LIC, the HD R&D Program is a strong participant in the International Test and Evaluation Program (ITEP).

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
	13.923	14.373	14.687	

FY08 Accomplishments: The HD R&D Program actively engaged in the operational field evaluations of 22 humanitarian demining (HD) technologies in 9 countries. As a result of requests made during the annual Requirements Workshop, OCONUS field assessments, and in-house developments in FY2007, the HD R&D program deployed many of its systems to humanitarian demining organizations overseas, including locations in Afghanistan and Iraq. The deployments initiated in FY2008 included the STORM to Cambodia, the Uni-Disk and Peco to Thailand, Sifting Buckets to Iraq, and MANTIS to Afghanistan. In addition, the HD R&D Program continued its deployments of the Tempest, Maxx, Maxx+, Survivable Demining Tractor, Explosive Harvesting System, Multi-Tool Excavator, Air-Spade, Improved Backhoe, Beaver, HSTAMIDS, Sifting Attachments, and the Rotary Mine Comb to countries in Africa, South America and Asia. The HD R&D Program continued final development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, individual deminer/soldier tools, and aerial survey area reduction. The HD R&D Program supported the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluations. The Program performed surveys and assessments in Ecuador, Vietnam, Angola, Cambodia and at the former Vieques Naval Training Range in Puerto Rico to determine whether HD equipment could be effectively utilized. In addition, data from the HD R&D Program's intensive evaluation of

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA#

0603920D8Z - SO/LIC Humanitarian De-mining

HSTAMIDS in the humanitarian demining context continued to provide critical training and operation techniques to the US Army's Tactical Countermining HSTAMIDS program. In FY2008 prototype development, program engineers completed several prototypes, including the remotely controlled Peco and Beaver vegetation clearing vehicles, which transitioned to evaluations in the field. In FY2008 the program tested 10 mine detection and clearance systems at Fort AP Hill, Yuma Proving Grounds, and Aberdeen Proving Grounds. Lastly, the HD R&D Program conducted its FY2008 Requirements Workshop, in which 53 participants from nine mine action organizations, seven non-governmental organizations (NGOs), and six US government entities discussed demining equipment needs. Countries represented included Cambodia, Chile, Nicaragua, Colombia, Peru, Thailand, Ecuador, Afghanistan, Iraq, Lebanon, Vietnam, and Angola. Representatives from the Department of State and the Combatant Commands (SOUTHCOM, AFRICOM and EUCOM) attended. Several international organizations active in mine action also participated, including representatives from the United Nations Mine Action Service (UNMAS), the Geneva International Centre for Humanitarian Demining (GICHD), and the Organization of American States (OAS).

FY09 Plans: The HD R&D Program will complete ongoing equipment developments/modifications and operational evaluations from FY2008. The HD R&D Program will support the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluation. The program will continue development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, and individual deminer/soldier tools.

FY10 Plans: The HD R&D Program will complete ongoing equipment developments/modifications and operational evaluations from FY2009. The HD R&D Program will support the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluation. The program will continue development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, and individual deminer/soldier tools.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015

Comment: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603923D8Z - Coalition Warfare						
	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
COST (\$ in Millions)								
P923 Coalition Warfare	9.768	13.246	13.885					

A. Mission Description and Budget Item Justification:

The Coalition Warfare Program (CWP) is the only Office of the Secretary of Defense (OSD) program dedicated to initiating cooperative research and development (R&D) projects with allies and coalition partners. The goal of the effort is to assist the Combatant Commands, Services, and Agencies with integrating coalition-enabling solutions into existing and planned U.S. programs. This adds value to the Department's security cooperation strategy through collaborative development of warfighter capabilities to enhance operations of U.S. and coalition forces.

Fighting the war on terrorism and coping with the new and emerging threats have put coalition warfare issues on the radar screens of policy makers and senior leaders throughout the U.S. Government. Coalitions are and will be the standard means for addressing international crises, lending political legitimacy and providing resources that mitigate U.S. financial, materiel, and personnel burdens. Interoperability gaps between and among coalition partners have compromised operational effectiveness and jeopardized force protection (e.g., fratricidal incidents). CWP strives to bridge these gaps, for example, by providing the necessary financial support to enhance coalition fire support capability and promote interoperability and integration of Mode 5 Identification, Friend, or Foe systems for U.S., NATO and allied platforms.

Cooperative efforts with likely coalition partners are needed to close interoperability gaps including those related to battlespace awareness, C4ISR, joint fires, intelligence fusion and data sharing, combat identification, logistics, weapon systems, and information sharing. Moreover, these small investments early in the R&D process yield large dividends and allow for sustainable coalition enabled U.S. systems. The OSD CWP encourages Combatant Commands, Services, Defense Agencies and OSD to involve friendly countries in development projects to meet coalition requirements that would otherwise not be realized. Partner nations participate to the extent permitted by security considerations (classified data and critical technology), when such partnering is advantageous to the U.S. Government and necessary in terms of security cooperation and regional threat scenarios.

The CWP approach to cooperative R&D projects is consistent with OSD-articulated, preferred methodologies: spiral development and evolutionary acquisition (i.e., getting solution-oriented, threshold-capabilities into the hands of the coalition warfighter quickly). Projects benefiting from CWP funding fall into one of two categories: those for which CWP funds no more than 50% of the U.S. portion, with foreign contributions making up the difference; and those involving CWP funding of coalition-oriented features of U.S.-only projects. Priority is given, in both categories, to initiatives offering potential solutions to interoperability issues that can be leveraged across multiple Combatant Commands.

The Combatant Commands, Services, Defense Agencies, and OSD nominate candidate projects on an annual basis. These projects are funded for one to two years. The Program selects projects based on their compatibility with established criteria, which are based on DoD priorities (e.g. CONPLAN 7500, the QDR Roadmap for Building Partner Capacity, the Combatant Commanders' Integrated Priority Lists), Joint Staff specified needs and requirements, equitable contributions from international partners, potential for transitions, portability across the regional and functional Combatant Commands, responsiveness to USD (AT&L) priorities for international armaments cooperation, and contributing to shaping operations and stability.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 4

0603923D8Z - Coalition Warfare

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	9.960	14.030	14.135	
Current BES/President's Budget (FY 2010)	9.768	13.246	13.885	
Total Adjustments	-0.192	-0.784	-0.250	
Congressional Program Reductions		-0.711		
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.173			
Other	-0.019	-0.073	-0.250	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0603923D8Z - Coalition Warfare					PROJECT P923	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P923 Coalition Warfare	9.768	13.246	13.885					

A. Mission Description and Budget Item Justification:

The Coalition Warfare Program (CWP) is the only Office of the Secretary of Defense (OSD) program dedicated to initiating cooperative research and development (R&D) projects with allies and coalition partners. The goal of the effort is to assist the Combatant Commands, Services, and Agencies with integrating coalition-enabling solutions into existing and planned U.S. programs. This adds value to the Department's security cooperation strategy through collaborative development of warfighter capabilities to enhance operations of U.S. and coalition forces.

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Cooperative efforts with likely coalition partners are needed to close interoperability gaps including those related to battlespace awareness, C4ISR, joint fires, intelligence fusion and data sharing, combat identification, logistics, weapon systems, and information sharing. Moreover, these small investments early in the R&D process yield large dividends and allow for sustainable coalition enabled U.S. systems. The OSD CWP encourages Combatant Commands, Services, Defense Agencies and OSD to involve friendly countries in development projects to meet coalition requirements that would otherwise not be realized. Partner nations participate to the extent permitted by security considerations (classified data and critical technology), when such partnering is advantageous to the U.S. Government and necessary in terms of security cooperation and regional threat scenarios.

The CWP approach to cooperative R&D projects is consistent with OSD-articulated, preferred methodologies: spiral development and evolutionary acquisition (i.e., getting solution-oriented, threshold-capabilities into the hands of the coalition warfighter quickly). Projects benefiting from CWP funding fall into one of two categories: those for which CWP funds no more than 50% of the U.S. portion, with foreign contributions making up the difference; and those involving CWP funding of coalition-oriented features of U.S.-only projects. Priority is given, in both categories, to initiatives offering potential solutions to interoperability issues that can be leveraged across multiple Combatant Commands.

The Combatant Commands, Services, Defense Agencies, and OSD nominate candidate projects on an annual basis. These projects are funded for one to two years. The Program selects projects based on their compatibility with established criteria, which are based on DoD priorities (e.g. CONPLAN 7500, the QDR Roadmap for Building Partner Capacity, the Combatant Commanders' Integrated Priority Lists), Joint Staff specified needs and requirements, equitable contributions from international partners, potential for transitions, portability across the regional and functional Combatant Commands, responsiveness to USD (AT&L) priorities for international armaments cooperation, and contributing to shaping operations and stability.

B. Accomplishments/Planned Program:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
EUCOM J2 Project		0.300		
(CLASSIFIED)				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Mode 5 Identification Friend or Foe		0.560		
Project is approaching its final flight trials with a NATO E-3 scheduled to participate in the USN Mode 5 Tech Eval. Once complete, project will have developed standards for the Mode 5 IFF combat identification system. Project team conducting interoperability and integration trials of the Mode 5 IFF combat recognition system on joint US service platforms & European AWACS aircraft.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Preplanned Response and Emergency Action (PRACT)		0.465		
Project team has participated in a number of demonstrations at U.S. and international venues. Once completed, project will increase regional stability in the US Southern Commands (SOUTHCOM) Area of Responsibility through the provisioning of a collaborative planning and coordinated response capability (technology and business practices) that enables accurate assessments, situational awareness, dynamic planning, and synchronized response to international disasters.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Everything over Internet Protocol		0.300		
Develop coalition communications interoperability with the Defense Information Systems Network services, for deployed warfighters, utilizing Everything over IP(EoIP) over transponded satellites technology.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Undersea FORCEnet Coalition Interoperability		0.272		
Special Operations and Naval Forces require an Undersea FORCEnet (Unet) architecture for command, control, communications (C3) and positioning of undersea distributed netted systems (UDNS), fixed and mobile, manned and unmanned, including gateways to submarines and space. Coalition assets and connectivity enhance capability, coverage and relevance of this Unet architecture.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Passive, Remote and Open Situation Awareness System		0.450		
Develop a network centric enterprise services architecture for effective use of netted multi-static RF sensors and UAV-based C4ISR systems including: signal processing and target geo-location techniques, remote joint fires, anti-terrorist force protection capability, and human systems integration using a coalition operational scenario to ensure tactics, techniques, and procedures evolve with technologies to enable decision superiority and deliver measurable effects on the battlefield.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Miniature Chemical Warfare Detection Agent		0.250	0.250	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
Develop a miniature automated chemical agent detector based on the current M256A1 chemistry. The new detector will provide additional enhancements such as automation, miniaturization, increased user friendliness, decreased detector response time, ability to communicate agent detection to user via audible, visual and/or physical (vibration) method, and the ability to be reused following decontamination. This detector could be used remotely and in limited or no light missions and would greatly improve the protective posture of both the main force and special operation forces.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
US Joint Tactical Radio Systems (JTRS) and UK Bowman Radio C2 Interoperability		0.700	0.700	
Port JTRS Bowman Waveform onto a JTRS platform and demonstrate interoperability between JTRS and Bowman radios. This second phase of the US/UK Bowman project consists of four primary objectives: Mission management task will focus on delivering BOWMAN VHF mission information to the JTRS loader through a representative scenario. Porting JBW and PII to JTRS hardware. Investigation of enhanced interoperability opportunities through HF and UHF waveform development. A JBW demonstration to pass situational awareness information in both directions between peer C2 systems.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Coalition Access to TRANSCOM Regulating C2 Evacuation System (TRAC2ES)		0.375		
Upgrade the existing TRANSCOM Regulating And Command/Control Evacuation System (TRAC2ES) to allow coalition forces access to required functionality while protecting the sensitive information in the TRAC2ES database from unauthorized disclosure.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Tactile Situation Awareness System		0.390	0.380	0.330
Deliver a technology that will reduce the workload of pilots; increase the situational awareness, and reduce the incidence of brownout mishaps in the desert environment.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Distributed Simulation for Coalition Warfare Training		0.070		
Integrate a prototype US Army virtual simulation with US and Coalition Air Force simulators to create a common distributed simulation environment that would support training for a wide range of Joint Interagency, Inter-governmental, and Multi-national operations, including Coalition Warfare.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Stabilized Weapons System Installation		0.790	0.600	
Design and test a stabilized weapon system module for combatant craft boats, in order to provide increased offensive and defensive fires capacity, improved maintenance, and minimum impact to deck arrangements.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Stake Holder Asset-Based Planning Environment		0.450	0.550	0.400
Develop requirements for a joint, interagency, and multi-national response; identify existing and emerging best in class methods and technologies that can support this whole of government and multi-national response; and then deliver those capabilities to the user communities.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Advanced Dynamic Magnetometer for Static and Moving Applications		0.530	0.440	0.430

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
Develop a compact and inexpensive micro-fluxgate magnetometer for use in multiple COCOMs.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Virtual Regional Maritime Traffic Center	0.310	0.538		
Develop the capability to: detect, track, identify, and display information on surface vessels; identify cooperative traffic; correlate, fuse, monitor, and analyze vessel tracks to enable timely and actionable decisions; collaborate and share MDA information such as vessel ID, manifest, and cargo, with desired users; enable participation in cross-language information sharing among all participants; and eventually, enable Partner Nations to acquire, own, operate, and maintain the capability without US DoD support.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
US-Singapore Unmanned Vehicle	0.776			
Develop and integrate a remotely operated small arms mount with two SPIKE missiles and .50 caliber gun onto the SPARTAN 7-meter RHIB; to expand operations for SPARTAN over-the-horizon by use of a Tactical Unmanned Air Vehicle.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
NATO Friendly Force Information (NFFI) Interface Prototype Standard (NIPS) Project	0.210	0.210		
Improve existing defense asset tracking technologies to permit US, allied and/or coalition countries to view personnel and asset position, status, and location information on national or NATO Common Operational/Tactical Pictures. This project will permit greater integration of allied/partner forces into on-going US Blue Force Situational Awareness (BFSA) initiatives. Specifically, the project will focus on: improving the current US Joint Blue Force Situational Awareness (BFSA) extensible markup language (XML) to permit a robust data exchange with future versions of the NATO Friendly Force Information (NFFI) data exchange standard, permitting secure classified transfer of information through the use of robust cross-domain solutions, and migrating this capability into net-enabled command and control (NECC).				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Optimizing Coalition Leader & Team Operational Readiness to Achieve Technical Interoperability in Network Centric Operations	0.140	0.315		
Define critical knowledge and skills required to work in a multinational net-centric operational environment and develop a repository of NCE human behavior factors for acquisition and operational consideration.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Multi-National Turnkey C2	0.480	0.490		
Provide NATO with a repeatable methodology and tools to accelerate C2 interoperability and reduce the ad hoc nature of the HQs formation process. This will enable a NATO HQ to rapidly determine required capabilities based on its specific JTF mission, ID shortfalls, and to develop sourcing solutions.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Multinational Virtual Learning Environment (MVLE)	0.290	0.210		
Establish the South Eastern Europe/Black Sea Region Multinational Virtual Learning Environment Training Site and to establish a real-time, online communications that includes a multilingual machine language translation and natural language interface development in support of the Bulgarian, Romanian, and Ukrainian languages.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Coalition Warfare Command & Control Interoperability Enhancement	0.847			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
Enhance coalition fire support capability where each Fires Coordination organization of partner nations may coordinate Fires from supporting coalition platforms and other Fires Coordination organizations.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Software Defined Radio Coalition Waveform			0.300	0.500
Define and standardize a US Software Communications Architecture (SCA) Software Defined Radio waveform for interoperable NATO and coalition operations.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Collaborative Portals		0.018	0.018	0.018
Development of web-based collaborative portals to support bilateral and multilateral fora.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
CW Support		0.681	0.693	0.712
Support to OUSD(AT&L)/IC for Coalition Warfare				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Collaborative Initiatives		0.114	0.410	0.240
Engagements with coalition partners to support USD(AT&L) priorities.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY 2010 New Starts				5.000
New start projects will be selected during FY10 from proposals that meet criteria based on the DoD priorities that drive coalition capability requirements.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
WiSARD			0.700	0.700
Provide a web service for net-centric, SOA-based operations that will improve streamlined, timely releasability of intelligence products to most trusted allies.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
SOA C2 Gap Filler			0.700	
Prove the service-oriented architecture approach in preparation for large scale implementation. The SOA C2 Gap Filler initiative's operational objectives are to provide NORAD-NORTHCOM air defense operations an interoperable coalition C2 integration and data fusion/correlation capability.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Pathogen Awareness			0.675	0.675
Improve situational awareness and force protection in areas with endemic pathogens in West Africa through use and demonstration of the Resequencing Pathogen Microarray (RPM) platform, data model, and satellite communications.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FBCB2/SIR Integration			0.200	0.200

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
Reduce the time it takes to exchange C2 data and information between U.S. FBCB2 and French SIR. This will be achieved by enabling the data exchange to occur at a lower echelon in the battlespace while meeting the requisite policy, information assurance, national security constraints.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
GPRS Pilot Project			0.350	0.350
Demonstrate an operational assessment involving the recovery of isolated US and coalition personnel and interoperability of the GPRS Implementation Project at a) Hardware level; b) Network level; c) Software application d) Security level.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Passive Detection of Special Nuclear Materials			0.300	0.300
Demonstrate the ability of near-term passive detection systems to achieve stand-off detection of kilogram quantities of special nuclear material and equip boarding party teams to locate and identify small quantities of these materials.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
SOAF Translation Services			0.300	0.300
Integrate high-quality machine translation (MT) products from multiple MT developers to the SOAF-A, and create accessible and reliable MT web services on a secure network. Improvements are: text-to-text translation of Thai, Korean, Japanese and Indonesian, and Character Recognition (CR) of Arabic, Urdu, and Pashto, and machine translations of Chinese, Indonesian and Malay				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
ADNS Coalition Network Interoperability			0.500	0.500
Demonstrate an interoperable, manageable, and secure coalition network based on existing and emerging standards, using, where possible, commercial services and products. The end goal is a managed IP network supporting and facilitating C2 between coalition platforms supporting a joint operation.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
GPS Receiver Core			0.250	0.250
Enable coalition users to take advantage of commercial, off-the-shelf GPS display and mapping software without relying on the civilian GPS engines.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Ultra High Performance Concrete Characterization			0.750	0.750
Fully characterize the material properties of UHPC as it reacts to blast, penetration, Mach Stem and Munroe Effects. This characterization will be accomplished in two concurrent phases and will determine production requirements, material characterization and modeling.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Common Ground			0.575	0.550
Provide a common geospatial information foundation supporting coalition C2 processes to include planning, intelligence preparation of the battlespace, course of action analysis, mission rehearsal, and execution monitoring.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 4	0603923D8Z - Coalition Warfare	P923		
International Recognition of Combat Vehicles		0.550	0.200	
Collect and process imagery of coalition platforms for inclusion into Recognition of Combat Vehicles and provide a sharing capacity of the trainer to all participating nations.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Maritime Domain Awareness-West Africa		0.550	0.475	
Expand and improve automation of existing SAR analysis tools and use these software tools to analyze SAR imagery covering the Exclusive Economic Zone of West and Central African nations.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
ITA Sensors		0.500	0.700	
Develop a set of sensor & policy algorithms and software tools for networking disparate ISR assets from coalition forces. The resulting sensor & policy networking technology will jointly address the physical constraints of sensor networks and policy of sharing information.				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Comprehensive Maritime Awareness--India			0.305	
Develop a multilateral information exchange capability to maximize sharing of MDA quality information between the United States and India				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
AT&L Program Reductions			0.242	

Program reductions

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

The Combatant Commands, Services, Defense Agencies, and the Office of the Secretary of Defense (OSD) nominate candidate projects on an annual basis. These projects are funded for one to two years. The Program selects projects based on their compatibility with established criteria, which are based on DoD priorities (e.g. CONPLAN 7500, the QDR Roadmap for Building Partner Capacity, Combatant Commanders' Integrated Priority Lists): meeting the needs and requirements specified by the Joint Staff and the Combatant Commanders, equitable contributions from international partners, potential for transitions and leverage across the regional and functional Combatant Commands, addressing potential risks related to security and controlled technology, responsiveness to USD (AT&L) priorities for international armaments cooperation, and contributing to shaping operations and stability.

FY09 new starts support the following commands: AFRICOM, EUCOM, NORTHCOM, and JFCOM. New start projects include development of a coalition waveform for software defined radios, U.S. FBCB2 and French SIR interoperability improvement, situational awareness and force protection in areas with endemic pathogens, demonstration of the ability of near-term passive detection systems to achieve stand-off detection of kilogram quantities of special nuclear material, among others.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0603923D8Z - Coalition Warfare							P923				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Coalition Warfare Program			11365	9768	1Q	13246	1Q	13885						
Subtotal:			11365	9768		13246		13885						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			11365	9768		13246		13885						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0603923D8Z - Coalition Warfare

PROJECT
P923

Event Name	FY 08				FY 09				FY 10																			
	1	2	3	4	Final	Demos	Wrap-up	3	4																			
(1) FY 07-08 Projects																												
FY 08-09 Projects																												
(2) FY 08-09 Projects					Development				Final Demos/Wrap-up																			
FY 09-10 Projects																												
(3) FY 09-10 Projects					Development				Final Demos/Wrap-up																			
FY 10-11 Projects																												
(4) FY 10-11 Projects	Development				Final Demos/Wrap-up																							

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE

0603923D8Z - Coalition Warfare

PROJECT

P923

<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
FY 07-08 Projects		4Q						
FY 08-09 Projects	1Q - 4Q	1Q - 4Q	1Q - 4Q					
FY 08-09 Projects			4Q					
FY 09-10 Projects		1Q - 4Q	1Q - 4Q					
FY 09-10 Projects								
FY 10-11 Projects			1Q - 4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604016D8Z - Corrosion Prevention and Control (CPC)						
	COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P015	Corrosion Prevention and Mitigation R&D Technologies and Projects	18.253	22.279	4.887				

A. Mission Description and Budget Item Justification:

(U) The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD has been estimated at between \$10 billion and \$20 billion each year. The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program.

(U) The Deputy Secretary of Defense designated the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) (PDUSD(AT&L)) as the DoD Corrosion Executive in May 2003. The DoD Corrosion Executive subsequently established a Corrosion Control and Oversight office to implement the program. Subsequently, in accordance with Section 371 of the 2008 National Defense Authorization Act, the Under Secretary of Defense (USD(AT&L)) designated a Director, Corrosion Policy and Oversight to perform the duties of the DoD Corrosion Executive with responsibilities as described in the 2008 NDAA legislation. A major responsibility of the Director, Corrosion Policy and Oversight is to select high payoff research and development projects that promise to prevent or mitigate corrosion and significantly reduce the total cost of corrosion along with the adverse impact of corrosion effects on weapon system and infrastructure operational capability. This office chartered a Corrosion Prevention and Control Integrated Product Team (CPCIPT) that has selected and funded Operation and Maintenance projects for each Fiscal Year (FY) commencing in FY 2005. However, the DoD CPCIPT has determined that the biggest payoff in corrosion prevention and mitigation will come from investing in up-front prevention technologies, materials, and processes to leverage downstream cost avoidances in corrosion maintenance and repair. Likewise, development of improved predictive and prognostic techniques can eliminate unseen failure and reduce unnecessary maintenance and repair costs. Thus, R&D projects have been selected and funded since FY 2006.

(U) The Corrosion Prevention Control Integrated Product Team membership consists of both the equipment and infrastructure corrosion control experts from the Services, the Joint Staff, the Coast Guard, and the National Aeronautics and Space Administration. The Services are given project guidelines and selection criteria. The CPC project selection board, chaired by the Director, Corrosion Policy and Oversight, reviews the projects and makes recommendations to the USD(AT&L) for final approval.

(U) The former Corrosion Executive issued a policy letter that states: "Basic systems design, materials and processes selection, and intrinsic corrosion-prevention strategies establish the corrosion susceptibility of Defense material. The early stages of acquisition provide our best opportunity to make effective trade-offs among the many competing design criteria. . ." The Congress and former DoD Corrosion Executive made it clear that research and development into materials and methods to prevent or mitigate corrosion should receive high priority. Since Congress has clearly established this program as one of its highest priorities, and has reiterated its expectations regarding funding levels and methods, our budget request is designed to reflect both fiscal realities of one or more on many proposed projects over the next five to ten years.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE

0604016D8Z - Corrosion Prevention and Control (CPC)

These projects address critical corrosion issues in both Department of Defense infrastructure as well as warfighting systems. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs of storage tanks and other mission support facilities essential to maintain support for the warfighter. Each of the services has identified important projects that vastly increase operational readiness and reduce operations and maintenance costs. All services are studying corrosion inhibitors that improve reliability and life of electrical and avionics equipment. Likewise, an array of highly effective, rapid cure coatings that are easy to apply and can forestall corrosion for many years on aircraft and ships are being developed. Other vital projects being considered include sealants, wash down systems, sensors and prognostic technologies that have joint service applications and potential to prevent and mitigate corrosion and its effects over a wide range of systems. The FY 2009 budget request will provide a critically needed resource to trigger even larger investment and cost avoidance.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 4

0604016D8Z - Corrosion Prevention and Control (CPC)

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	18.917	5.102	5.050	
Current BES/President's Budget (FY 2010)	18.253	22.279	4.887	
Total Adjustments	-0.664	17.177	-0.163	
Congressional Program Reductions				
Congressional Rescissions		-0.123		
Congressional Increases		17.300		
Reprogrammings	-0.108			
SBIR/STTR Transfer	-0.519			
Other	-0.037		-0.163	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

There is an annual Corrosion Prevention and Control Integrated Project Team (CPCIPT) call for proposed project plans in April. Projects are submitted by the Services annually in June. The project plan format is contained in the DoD Corrosion Prevention and Mitigation Strategic Plan. Each project plan contains:

1. Problem statement: Description of the problem or situation, including background, history, issues, operational problems and support costs.
2. Impact statement: Details regarding why project is important including description of the operational and/or logistic impact if no action is taken.
3. Technical description: Definition of the corrosion prevention and control objective and description of the system affected by this project; applicable technologies and associated development; expected operations and logistics performance improvement characteristics; brief description of the user community and how it will apply to their mission; and current acquisition status.
4. Risk analysis: Description of the risk in managing/developing/prototyping/ testing/qualifying/manufacturing/completing the technical effort including assumptions that could affect project development or implementation.
5. Proposed phases: If project is complex and will be performed in phases, description of each phase objective.
6. Expected deliverables and results or outcomes: Description of products to be delivered such as type/number of hardware, technical orders/drawings, installation, training, etc.; and description of expected operations and/or logistics performance improvements.
7. Program management: Description of the overall approach and tasks to be taken to accomplish the project, including organization, coordination and acquisition approach.
8. Cost/benefit analysis: Definition of all resources necessary to accomplish project, description of resulting benefits, computation of Return-On-Investment (ROI), and documentation of mission criticality.
9. Schedule: Milestone chart showing all significant events through project completion.
10. Implementation plan: Explanation of how the project will be implemented when completed including a description of the transition approach.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 4

0604016D8Z - Corrosion Prevention and Control (CPC)

The Corrosion Prevention and Control Integrated Project Team (CPCIPT) receives project plans and engages an evaluation panel to review proposed projects and make recommendations regarding project selection. Projects are also evaluated using Data Envelopment Analysis (DEA) to rank projects by relative efficiency. DEA factors include project performance period, ratio of OSD funding to Service funding, return-on-investment (ROI), project acceptability, potential benefits and joint service applicability. DEA efficiency scores are provided to the evaluation team to assist in their prioritization of projects for funding. In addition, evaluators consider the following in recommending final priorities:

1. Return on investment credibility: Degree to which there is evidence that the project will achieve an acceptable return on investment
2. Technology maturity: Degree to which proposed technology has been developed or demonstrated and will satisfy project objectives
3. Schedule confidence: Degree to which the project is likely to be completed on time
4. Budget confidence: Degree to which the project is likely to be completed within the proposed budget
5. Management support: Degree to which management actively supports this project and has committed program resources to both manage and support this project

The project priority ranking is finalized and sent to the CPCIPT lead for a final decision.. Upon acceptance and approval of the projects by the CPCIPT, the projects are briefed to the Corrosion Forum. Funding is distributed between the Services based on priority and the evaluation process results.

Upon selection by CPCIPT of the highest priority projects and final funding approval, Office of the Secretary of Defense (OSD) transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the Corrosion Prevention and Control initiative through the CPCIPT. Project oversight includes the review of bi-monthly status reports which address progress summary, performance goals and metrics and upcoming key events, as well as reports to periodic Corrosion Forums.

The bi-monthly project report (PR) format has been defined and requires the following input:

1. Statement of progress
2. Outstanding issues
3. Performance goals and metrics
4. Upcoming events
5. Schedule status
6. Current return on investment (ROI) status

These project reports (PRs) are submitted to the CPCIPT. The CPCIPT analyzes project status, progress and project statistics and informs the Service points of c

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	Life cycle cost reduction	\$200M cost avoidance	\$200M cost avoidance	\$650M cost avoidance	ROI: 10:1	ROI: 98:1

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY			PE NUMBER AND TITLE			
RDTE, Defense Wide BA# 4			0604016D8Z - Corrosion Prevention and Control (CPC)			
09	Life cycle cost reduction	\$200M cost avoidance	\$200M cost avoidance		ROI: 10:1	
10	Life cycle cost reduction	\$200M cost avoidance	\$200M cost avoidance		ROI: 10:1	

Comment:

The objective of each of the projects is the reduction in the life cycle costs of corrosion for the affected systems. Return on Investment (ROI) is the primary performance metric for the projects and for the Corrosion Prevention and Control (CPC) initiative. The average projected ROI for these projects (based on discounted cash flow computations) exceeds 10:1 with estimated annual direct cost avoidance of over \$200 million across the Future Years Defense Plan. Thus, the critical performance metric for this effort is the resulting life cycle cost reduction. Gains in reliability, maintainability, supportability, and thus readiness are the by-products of the projects with attendant additional cost reduction benefits. Cost avoidances will be measured and tracked for each project, summed to the Service level and totaled at the Office of the Secretary of Defense (OSD) level.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604016D8Z - Corrosion Prevention and Control (CPC)					PROJECT P015	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P015 Corrosion Prevention and Mitigation R&D Technologies and Projects	18.253	22.279	4.887					

A. Mission Description and Budget Item Justification:

(U) The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD has been estimated at between \$10 billion and \$20 billion each year. The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604016D8Z - Corrosion Prevention and Control (CPC)	PROJECT P015
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These projects address critical corrosion issues in both Department of Defense infrastructure as well as warfighting systems. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs of storage tanks and other mission support facilities essential to maintain support for the warfighter. Each of the services has identified important projects that vastly increase operational readiness and reduce operations and maintenance costs. All services are studying corrosion inhibitors that improve reliability and life of electrical and avionics equipment. Likewise, an array of highly effective, rapid cure coatings that are easy to apply and can forestall corrosion for many years on aircraft and ships are being developed. Other vital projects being considered include sealants, wash down systems, sensors and prognostic technologies that have joint service applications and potential to prevent and mitigate corrosion and its effects over a wide range of systems. The FY 2009 budget request will provide a critically needed resource to trigger even larger investment and cost avoidance.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	1.435	1.470	1.440	
Coatings and Corrosion Prevention Compounds				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	0.665	0.680	0.620	
Diagnostics, Prognostics, Monitoring and NDI Technologies				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	0.500	0.510	0.510	
Prediction, Modeling and Supporting Technologies				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	0.550	0.562	0.510	
Maintenance and Cathodic Protection Technologies and Practices				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	0.390	0.400	0.390	
Materials Selection Processes				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation:	1.443	1.480	1.417	
Corrosion Control Management Activities				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Corrosion Prevention and Mitigation	13.270	17.177		
University initiatives for Corrosion Prevention and Control				

C. Other Program Funding Summary: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 4

0604016D8Z - Corrosion Prevention and Control (CPC)

P015

D. Acquisition Strategy:

There is an annual Corrosion Prevention and Control Integrated Project Team (CPCIPT) call for proposed project plans in April. Projects are submitted by the Services annually in June. The project plan format is contained in the DoD Corrosion Prevention and Mitigation Strategic Plan. Each project plan contains:

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4. Risk analysis: Description of the risk in managing/developing/prototyping/ testing/qualifying/manufacturing/completing the technical effort including assumptions that could affect project development or implementation.
5. Proposed phases: If project is complex and will be performed in phases, description of each phase objective.
6. Expected deliverables and results or outcomes: Description of products to be delivered such as type/number of hardware, technical orders/drawings, installation, training, etc.; and description of expected operations and/or logistics performance improvements.
7. Program management: Description of the overall approach and tasks to be taken to accomplish the project, including organization, coordination and acquisition approach.
8. Cost/benefit analysis: Definition of all resources necessary to accomplish project, description of resulting benefits, computation of Return-On-Investment (ROI), and documentation of mission criticality.
9. Schedule: Milestone chart showing all significant events through project completion.
10. Implementation plan: Explanation of how the project will be implemented when completed including a description of the transition approach.

The Corrosion Prevention and Control Integrated Project Team (CPCIPT) receives project plans and engages an evaluation panel to review proposed projects and make recommendations regarding project selection. Projects are also evaluated using Data Envelopment Analysis (DEA) to rank projects by relative efficiency. DEA factors include project performance period, ratio of OSD funding to Service funding, return-on-investment (ROI), project acceptability, potential benefits and joint service applicability. DEA efficiency scores are provided to the evaluation team to assist in their prioritization of projects for funding. In addition, evaluators consider the following in recommending final priorities:

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4. Budget confidence: Degree to which the project is likely to be completed within the proposed budget
5. Management support: Degree to which management actively supports this project and has committed program resources to both manage and support this project

The project priority ranking is finalized and sent to the CPCIPT lead for a final decision.. Upon acceptance and approval of the projects by the CPCIPT, the projects are briefed to the Corrosion Forum. Funding is distributed between the Services based on priority and the evaluation process results.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 4

0604016D8Z - Corrosion Prevention and Control (CPC)

P015

Upon selection by CPCIPT of the highest priority projects and final funding approval, Office of the Secretary of Defense (OSD) transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the Corrosion Prevention and Control initiative through the CPCIPT. Project oversight includes the review of bi-monthly status reports which address progress summary, performance goals and metrics and upcoming key events, as well as reports to periodic Corrosion Forums.

The bi-monthly project report (PR) format has been defined and requires the following input:

1. Statement of progress
2. Outstanding issues
3. Performance goals and metrics
4. Upcoming events
5. Schedule status
6. Current return on investment (ROI) status

These project reports (PRs) are submitted to the CPCIPT. The CPCIPT analyzes project status, progress and project statistics and informs the Service points of contacts.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0604016D8Z - Corrosion Prevention and Control (CPC)							P015				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Coatings and Corrosion Prevention Compounds			4105	1435		1470		1440						
Diagnostics, Prognostics, Monitoring and NDI Technologies			1896	665		680		620						
Modeling and Supporting Technologies			1430	500		510		510						
Maintenance and Cathodic Protection Technologies and Practices			1572	550		562		510						
Materials Selection Processes			1110	390		400		390						
Corrosion Control Management Activities			4414	1443		1480		1417						
University initiatives for Corrosion Prevention and Control				13270		17177								
Subtotal:			14527	18253		22279		4887						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Remarks: Support provided by CPC Program														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Remarks: Test and Evaluation included in Product Development Costs														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604016D8Z - Corrosion Prevention and Control (CPC)	PROJECT P015
Subtotal:		
Remarks: Management Services listed in Product Development as Corrosion Control Management Activities		
Project Total Cost:	14527	18253
		22279
		4887

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604016D8Z - Corrosion Prevention and Control (CPC)

PROJECT
P015

Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
(1) FY 08 project selection	▲1																															
(2) FY 08 project funding		▲2																														
(3) FY 08 project completion				▲3																												
(4) FY 08 final report								▲4																								
(5) FY09 project selection								▲5																								
(6) FY09 project funding								▲6																								
(7) FY09 project completion												▲7																				
(8) FY09 final report																▲8																
(9) FY10 project selection												▲9																				
(10) FY10 project funding																▲10																

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE

0604016D8Z - Corrosion Prevention and Control (CPC)

PROJECT

P015

<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
FY 08 project selection	1Q							
FY 08 project funding	2Q							
FY 08 project completion		1Q						
FY 08 final report		2Q						
FY09 project selection		1Q						
FY09 project funding		2Q						
FY09 project completion			1Q					
FY09 final report			2Q					
FY10 project selection			1Q					
FY10 project funding			2Q					
FY10 project completion								
FY10 final report								

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
Total Program Element (PE) Cost			55.289				
P440 DoD Unmanned Aircraft System (UAS) Airspace Integration			35.289				
P442 UAS Common Ground Station Demonstration			20.000				

A. Mission Description and Budget Item Justification:

The Department of Defense (DOD) Unmanned Aircraft Systems (UAS) Common Development is a joint effort to develop and demonstrate common standards, architectures, and technologies that address UAS-specific issues across all Military Services. The intent is to increase interoperability and effectiveness by promoting cooperative development of solutions that are applicable across major classes of UAS. This effort will initially focus on addressing DOD UAS integration into the National Airspace System (NAS) and demonstration of a common, interoperable ground station architecture and associated interface standards.

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)				
Current BES/President's Budget (FY 2010)			55.289	
Total Adjustments			55.289	
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other			55.289	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace					PROJECT P440	
		Integration						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P440 DoD Unmanned Aircraft System (UAS) Airspace Integration			35.289					

A. Mission Description and Budget Item Justification:

In FY12 the Department plans to transition from the U-2 to the Global Hawk (GH), but today's restrictions on airspace access preclude this. GH and the Broad Area Maritime Surveillance (BAMS) UAS, also a GH aircraft, need an autonomous, sense-and-avoid (SAA) to satisfy the Title 14 Code of Federal Regulations, Part 91.113, requirement to See-and-Avoid other aircraft. Predator and Sky Warrior have similar requirements for SAA capability; their SAA technology development will leverage the GH/BAMS technology. Development of a Ground Based Sense-and-Avoid (GBSAA) system using existing technology can provide a near-term solution for improved airspace access, both for terminal operations (e.g., Beale AFB, GH transit to/from controlled airspace) and for operations/training within the GBSAA system's coverage area (e.g., Sky Warrior at El Mirage, Shadow operations at Cherry Point).

Funding accelerates the development of a common onboard, autonomous SAA capability for GH and BAMS, provides a similar SAA system for Predator and Sky Warrior, provides a GBSAA capability to meet DoD training and operational objectives at locations where airspace restrictions currently limit training and operations, and establishes dedicated funding to develop standards, modeling and simulation tools, and technology to enable DoD UAS to routinely access the national and international airspace systems.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
			35.289

Accomplishments:

Starting in FY2010 the Department's sense-and-avoid (SAA) developmental efforts will be consolidated within this defense-wide program element. In prior years UAS AI efforts were funded by individual programs of record.

Plans:

Today there are restrictions on airspace access for DoD UAS. Global Hawk (GH) and the Broad Area Maritime Surveillance (BAMS) UAS, also a GH aircraft, need an autonomous, airborne sense-and-avoid (ABSAA) to satisfy the Title 14 Code of Federal Regulations, Part 91.113, requirement to see-and-avoid other aircraft and to operate in international airspace under "Due Regard" procedures. Predator and Sky Warrior have similar requirements for ABSAA capability; their technology development will leverage the GH/BAMS technology. Development of an autonomous, ABSAA system is also dependent on the development of certified performance standards and the modeling and simulation tools needed to validate the standards. Development of a Ground Based Sense-and-Avoid (GBSAA) system using existing technology will provide a near-term solution for improved airspace access, both for terminal operations (e.g., Beale AFB, GH transit to/from controlled airspace) and for operations/training within the GBSAA system's coverage area (e.g., Sky Warrior at El Mirage, Shadow operations at Cherry Point).

This program funds the development of ABSAA systems and standards to enable UAS to routinely access the national and international airspace systems, and provides a GBSAA solution for improved airspace access in the near-term. This program also develops modeling and simulation tools needed to validate the systems and standards.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE

0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT			
4 - Advanced Component Development and Prototypes (ACDP)			0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration							P440			
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Product Development	Competitive - Various	TBD						35289	1-4Q				
Subtotal:								35289					
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
Project Total Cost:								35289					

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration

PROJECT
P440

Event Name	FY 08				FY 09				FY 10																		
	1	2	3	4	1	2	3	4	1	2	3	4															
Requirements Analysis					CBA for International AI																						
(1)									AoA																		
(2)									 NAS ICD																		
(3)									ABSAA - Phase 0  Requirements Analysis																		
ABSAA,																											
(4)																											
GBSAA Proofs of Concept (POC) / Requirements					Data Collection/Process																						
									Tech Development /Universal Refinement																		
													Provisional Separation Assurance														
					 Development																						

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration	PROJECT P440
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Requirements Analysis		3Q - 4Q	1Q - 4Q					
		2Q - 4Q						
		2Q						
			2Q					
ABSAA		2Q - 4Q	1Q					
		2Q - 4Q	1Q					
GBSAA Proofs of Concept (POC) / Requirements		1Q - 4Q	1Q - 3Q					
			3Q - 4Q					
		1Q - 4Q	1Q - 4Q					
		1Q - 4Q	1Q - 4Q					
			1Q - 4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration					PROJECT P442	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P442 UAS Common Ground Station Demonstration			20.000					

A. Mission Description and Budget Item Justification:

The UAS Common Ground Station Demonstration project is intended to develop and demonstrate an interoperable, standards-based, open ground station architecture for MQ-1 (Predator/Sky Warrior), MQ-5 (Hunter), MQ-8 (Fire Scout), and MQ-9 (Reaper) UAS. The intent is to improve joint- and coalition-interoperability and to promote competition through the implementation of open standards and open architectures.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
			20.000	

Accomplishment / Plans:

Beginning in FY2010, the UAS Common Ground Station Demonstration project intends to develop and demonstrate an interoperable, standards-based, open ground station architecture for MQ-1 (Predator/Sky Warrior), MQ-5 (Hunter), MQ-8 (Fire Scout), and MQ-9 (Reaper) UAS. The intent is to improve joint- and coalition-interoperability and to promote competition through the implementation of open standards and open architectures.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT			
4 - Advanced Component Development and Prototypes (ACDP)			0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration							P442			
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Product Development	Competitive - Various	TBD						20000	1Q				
Subtotal:								20000					
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Subtotal:													
Project Total Cost:								20000					

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration

PROJECT
P442

Event Name	FY 08				FY 09				FY 10																						
	1	2	3	4	1	2	3	4	1	2	3	4																			
Architecture Development					Final V1.0																										
									Preliminary Analysis																						
									Architecture Definition																						
Architecture Verification,									Industrial Response				Application																		
GCS Prototype Integration									AV Modifications				VSM Development																		
									AV Modifications																						
									AV Modifications																						
									AV Modifications																						
									AV Modifications																						
									AV Modifications																						

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604400D8Z - DoD Unmanned Aircraft System (UAS) Airspace Integration	PROJECT P442
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Architecture Development		1Q - 4Q						
		3Q - 4Q	1Q					
			1Q - 3Q					
			1Q - 4Q					
Architecture Verification		2Q						
		3Q						
		3Q						
			2Q - 4Q					
			3Q - 4Q					
GCS Prototype Integration			1Q - 4Q					
			1Q - 4Q					
		1Q	4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)						
	COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P649	Joint Capability Technology Demonstration (JCTD)	2.866	13.487	18.577				

A. Mission Description and Budget Item Justification:

The purpose of the Joint Capability Technology Demonstration (JCTD) BA 4 Transition Program is to:

- Establish a "Transition Arm" to incorporate dedicated funding outside S&T to enhance the successful transition of JCTD projects to Programs of Record (PORs).
- Provide a venue to methodically facilitate transition of successful technologies beyond initial demonstration phase and into early acquisition.
- Continue the maturity and fielding of the most successful JCTDs that have proven operational utility and U.S. Combatant Commands deem critical for joint warfighting capabilities.

Selection criteria selecting successfully demonstrated projects for JCTD Transition funding: 1) must successfully complete a Operational Utility Assessment (OUA); 2) have strong U.S. Combatant Command support and provide a CoCom/Coalition capability and; 3) require no more than two years of funding until the traditional Planning, Programming Budgeting & Execution (PPBE) process that provides a permanent acquisition/transition solution. Additionally:

- Projects must attain a technology maturity of Technical Readiness Level (TRL) 6/7.
- JCTD Transition funds will provide a ramp to traditional acquisition just prior to Milestone B by expediting transition at the Initial Capability Document/Capability Development Document (ICD/CDD) phase in the JCIDS process.

In FY 2009, the JCTD Transition BA4 will execute transition funding of \$13.6 million to support nine JCTD transition efforts and one Congressional add. In FY 2009, the Hyperspectral Collection and Analysis (HyCAS) ACTD has been selected to receive transition funding to advance Airborne Hyperspectral capabilities. Sensors associated with the HyCAS ACTD have proven effective in operational demonstrations supporting Operation Enduring Freedom (OEF). In addition to HyCAS, other FY 2009 candidates selected are Joint Force Protection, Joint Precision Airdrop System (JPADS), Coalition Joint Spectrum Management and Planning Tool (CJSMPT), Comprehensive Maritime Awareness (CMA), Regional Maritime Awareness (RMAC), and Zephyr. A transfer of \$10.000 million from the JCTD BA3 developmental PE into the JCTD Transition BA4 PE has enabled a wider selection of potential successful candidates for transition funds while waiting for funding in a program of record increasing the ability to effect successful transition.

In FY 2010, 11 projects are programmed to receive transition funding totaling \$18.8 million. In FY 2010 projects selected for transition funding are: Mapping the Human Terrain (MAP-HT), Hyperspectral Collection and Analysis (HyCAS), Theater Effects Based Operations (TEBO), Joint Enable Theater Access (JETA-SPOD), Joint Coordinated Real-Time Engagement (JCRE), Global Observer, Zephyr, Critical Runway Assessment and Repair (CRATR), Joint Precision Air Drop System (JPADS), Joint Multi-Mission Electro-Optic System (JMMES).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE

0604648D8Z - Joint Capability Technology Demonstration (JCTD)

MEASURABLE OUTCOME: The BA4 transition program enables achievement of increased transition metric of 75 percent for the JCTD program. The goal is to ensure the most successful demonstrations and capabilities rapidly find a transition path into a program of record (POR). BA4 funding in FY 2007 enabled the transition of products from the Joint Distance Support and Response (JDSR) and Language and Speech Exploitation Resources (LASER) ACTDs to the field in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) as well as into Service PORs meeting CoCom requirements. Active Denial System (ADS), Foliage Penetration/Synthetic Aperture Radiar (FOPEN), Joint Force Protection (JFP), Rapid Airborne Reporting & Exploitation (RARE) ACTDs and the Joint Intermodal Distribution System (JMIDS) JCTD. BA4 funding recipients in FY 2008 provided residual products to the field in support of the Warfighter and are currently in the formal process of transition to PORs.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0604648D8Z - Joint Capability Technology Demonstration (JCTD)

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	2.934	14.962	18.911	
Current BES/President's Budget (FY 2010)	2.866	13.487	18.577	
Total Adjustments	-0.068	-1.475	-0.334	
Congressional Program Reductions		-3.000		
Congressional Rescissions		-0.075		
Congressional Increases		1.600		
Reprogrammings				
SBIR/STTR Transfer	-0.062			
Other	-0.006		-0.334	

In FY 2008 SBIR/STTR was \$62 thousand. There were no Congressional adjustments.

In FY 2009 there was one Congressional increase of \$1.600 million for the project Advanced Active Deniel Planar Scanning Antenna System. There was a Congressional reduction of \$3.0M and Sections 8104 and 8025 for \$75 thousand.

FY 2010 reflect DoD programmatic change and financial adjustments.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010				
ACTD PE 0603750D8Z (RDT&E/DW BA-3/Line #48)	1.552	1.194					
JCTD PE 0603648D8Z (RDT&E/DW BA-3/Line #35)	202.976	207.096	198.352				

Comment:

The JCTD model contains a BA3 development arm as well as BA4 transition arm. The transition arm of the model is funded in this program element 0604648D8Z and addresses transition requirements of successfully demonstrated capabilities. In FY 2008 all ACTD funding transferred to the JCTD BA3 developmental program element. This will complete the transition to the JCTD model that began in the FY 2006 President's Budget. The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The initial funding lines (program elements (PE)) are outlined in the table below. The PEs in the table (with the exception of the ACTD BA3 PE which fully transferred to the JCTD BA3 PE in FY 2008) represents the JCTD model. Under the new JCTD process, the pace of development has been accelerated to two to three years. Only the JCTDs that demonstrate the highest military utility are considered for the transition funding in the JCTD BA4 Transition PE. Not all JCTDs require transition funding, many projects have a very clear transition path, however, some projects that demonstrate significant military utility require transition funds to "bridge" to a program of record. Any promising remaining ACTD may receive transition funding during the transition period to the JCTD program. Beginning in FY 2007 and out all new starts were JCTDs only. Refer to the specific Budget Exhibit for more details on each funding line.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 4

0604648D8Z - Joint Capability Technology Demonstration (JCTD)

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	Project Selection Focus					
	Spiral Technologies					
	Time to Final Demonstration					
	Adequately Shared Funding and Visibility					
	Independent Assessment Capability					
	Successful Military Utility Assessment (MUA)					

Comment:

The majority of funding from this Program Element is forwarded to the Services/Defense Agencies that execute the individual JCTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the JCTD program, to include the individual JCTD projects. The JCTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. The JCTD BA4 funding, unlike the JCTD BA3 developmental funding, is specifically targeted at increasing the rate of transition for critical CoCom/Coalition capabilities. The JCTD model has developed a set of metrics, two of which are centered around spiraling products and transitioning capability. The JCTD Transition funds are specifically targeted to towards these two in particular. These metrics are driven by the overall business process which includes six parts: (1) selection focus; (2) ability to spin-off spiral technologies; (3) time necessary to complete a final demonstration; (4) adequately resourced projects with appropriate oversight; (5) capability to complete an independent assessment of the technology; and (6) the number of successful capabilities that are actually transitioned to the warfighter. The table below defines the metrics of the new JCTD business process model.

- 1) Project Selection Focus: Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs.
- 2) Spiral Technologies: 25% of JCTDs will provide an operationally relevant product demonstration within 24 months of ID signature.
- 3) Final Demonstration Completed: 75% of JCTD projects complete final demonstration within three years of ID signature.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE

0604648D8Z - Joint Capability Technology Demonstration (JCTD)

4) Shared Funding and Viability of resources: OSD provides significantly more funding than the former ACTD program, greater than 30% in some cases a majority of projected funding, especially in the first two years.

5) Complete independent assessments.

6) Number of capabilities transitioned to the warfighter.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)					PROJECT P649		
	COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P649	Joint Capability Technology Demonstration (JCTD)	2.866	13.487	18.577					

A. Mission Description and Budget Item Justification:

The purpose of the Joint Capability Technology Demonstration (JCTD) BA4 Transition Program is to:

- Establish a "Transition Arm" to incorporate dedicated funding outside S&T to enhance the successful transition of JCTD projects to Programs of Record (PORs).
- Provide a venue to methodically facilitate transition of successful technologies beyond initial demonstration phase and into early acquisition.
- Continue the maturity and fielding of the most successful JCTDs that have proven operational utility and U.S. Combatant Commands deem critical for joint warfighting capabilities.

Selection criteria selecting successfully demonstrated projects for JCTD Transition funding: 1) must successfully complete a Operational Utility Assessment (OUA); 2) have strong U.S. Combatant Command support and provide a CoCom/Coalition capability and; 3) require no more than two years of funding until the traditional Planning, Programming Budgeting & Execution (PPBE) process provides a permanent acquisition/transition solution. Additionally:

- Projects must attain a technology maturity of Technical Readiness Level (TRL) 6/7.
- JCTD Transition funds will provide a ramp to traditional acquisition just prior to Milestone B by expediting transition at the Initial Capability Document/Capability Development Document (ICD/CDD) phase in the JCIDS process.

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In FY 2010, eleven projects are programmed to receive transition funding totaling \$18.800 million. In FY 2010 projects selected for transition funding are: Mapping the Human Terrain (MAP-HT), Zephyr, Global Observer, Theater Effects Based Operations (TEBO), Joint Enable Theater Access (JETA-SPOD), Regional Maritime Awareness (RMAC), Joint Coordinated Real-Time Engagement (JCRE), Hyperspectral Collection and Analysis (HyCAS), Joint Precision Airdrop System (JPADS), Critical Runway Assessment and Repair (CRATR), and Joint Multi-Mission Electro-Optic Sys. (JMMES).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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MEASURABLE OUTCOME: The BA4 transition program enables achievement of increased transition metric of 75 percent for the JCTD program. The goal is to ensure the most successful demonstrations and capabilities rapidly find a transition path into a program of record (POR). BA4 funding in FY 2007 enabled the transition of products from the Joint Distance Support and Response (JDSR) and Language and Speech Exploitation Resources (LASER) ACTDs to the field in support of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) as well as into Service PORs meeting CoCom requirements. Active Denial System (ADS), Foliage Penetration/Synthetic Aperture Radiar (FOPEN), Joint Force Protection (JFP), Rapid Airborne Reporting & Exploitation (RARE) ACTDs and the Joint Intermodal Distribution System (JMIDS) JCTD, BA4 funding recipients FY 2008, have provided residual products to the field in support of the Warfighter and are currently in the formal process of transition to PORs.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Active Denial System (ADS)	0.150		

The Active Denial System (ADS) ACTD completed in FY 2007 and will transition in FY 2010. This is a long range, directed energy technology that provides safe and effective non-lethal capability. Being treaty and legal compliant, ADS provides the Combatant Commander a non-lethal means to engage adversaries in complex situations where lethal force is restricted or inappropriate. Investment in this transformational capability not only provides the battlefield commander an important new option between the use of lethal force or taking no action, but also demonstrates U.S. commitment to preventing unnecessary loss of life. Requests from the USCENTCOM AOR for this capability for OEF/OIF forces have been received. Funding will be used to transition from the ADS ACTD to an ADS Program of Record.

FY 2008 Transition Output: conducted a technology assessment and a system requirements review for the next generation Active Denial System; Milestone B documentation developed for future acquisition; and preparation of a request for proposals, including holding one or more industry days to encourage competition.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Foliage Penetration Signature Aperture Radar (FOPEN)	0.150		

The Joint Requirements Oversight Council (JROC) validated the capability need for the Foliage Penetrating Radar (FOPEN) ACTD as an FY 2003 new start. The outcome of FOPEN provided real-time detection and cueing of stationary targets obscured by foliage and under camouflage using tactical sensors, and to document technical requirements to better describe the characteristics and technology needed to develop a fully operational sensor system. The primary outputs and efficiencies for this project were products that locate and help in the generation of actionable information for targets under foliage or camouflage, with significant reduction in the number of sorties or manned patrols currently required. Output goals were: to provide actionable intelligence within 1 hour of mission completion, and complete analysis of an entire mission within 12 hours; to detect 50% of relocated vehicle-sized targets under double canopy; to geo-locate points of interest and targets to within 10 meters; to map concealed terrain and lines-of-communications at rates of 150 km/hr; generate bald-earth digital elevation models to accuracies equivalent to NGA DTED Level-II or greater; to measure ability to map man-made infrastructure (roads, paths, etc.) and relevant geographic features (rivers, streams, etc.) through average Central/South American foliage with sufficient fidelity to support military operations; to measure the ability to detect and locate relevant narco-terrorist related targets of interest with sufficient fidelity and timeliness to support military operations. The user sponsor was U.S. Southern Command (USSOUTHCOM) and the lead service is the Army. Due to the immaturity of critical technological components, the start of the ACTD was delayed until FY 2005, when DARPA delivered the necessary advanced software products. The transition strategy for FOPEN include: funding to transition in limited quantities (estimated 2) to an unmanned aircraft system is in the Army FY 2007 President's Budget. Currently, Predator B was being considered as the primary host. The existing FOPEN-equipped RC-12D will be retained by the Army's Research and Development Command for continued development and operational applications (as needed on a fee-for-service basis).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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FY 2008 Transition Output: A Deployment Order was coordinated for this system to support a current Joint Urgent Operational Need. Two UAV-class FOPEN sensors were developed as part of the Army's Tactical Reconnaissance And Counter-concealment Enabled Radar, a Program of Record identified in the FY 2007 President's Budget. Delivery was anticipated in FY 2011 and currently, Predator and Warrior Extended Range Multi Purpose were being considered as the primary host. The Army's Research and Development Command will retain the existing FOPEN-equipped RC-12D for continued development and operational applications (as needed on a fee-for-service basis).

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Force Projection (JFP)	0.650	1.000		

The Joint Requirements Oversight Council (JROC) validated the capability need for Joint Force Projection (JFP) as a FY 2005 new start. The outcome of JFP ACTD is to provide the joint Warfighter the capability to identify, source, schedule, move, maintain visibility of, and close force capabilities across the entire Force Projection process. This capability will support joint deployment planning and execution, and provide emerging adaptive planning and Net-Enabled Command Capability capabilities. The primary outputs and efficiencies to be demonstrated are: (1) 100 percent net-centric access to core deployment planning and execution systems; (2) develop, test, and demonstrate model-based decision support tools to give the Joint Force Commander the ability to be able to conduct rapid, dynamic course of action analysis and predictive assessment of the deployment flow on current operations; (3) develop, test, and demonstrate a common, joint toolset for Joint Reception, Staging, Onward Movement, and Integration (JRSOI) activities to coordinate the flow of forces and sustainment into a theater during execution; (4) ability to create, manage, and track capability-based force packages and link them to an operational plan (100 percent); (5) Crisis Action Planning and Execution (after release of deployment order) support development and maintenance cycle for Operations Order (OPORD) and associated products. Achieve cycle time reduction from 2 weeks to less than 96 hours. (6) Go from less than 5 percent of a capability in the current systems to 80 percent ability with the Joint Capabilities Requirements Tool and JFP to create, manage, and track capability-based force packages and link them to an operational plan. (7) Increase the end-to-end visibility of forces as capabilities from zero in the current process to 80% with JFP. (8) Potential of reducing the primary thread of deployment systems from 193 to 34, with an industry standard Return on Investment of 30%. Planned JFP transition: Improved capabilities will be provided to Programs of Record for the next generation of command and control and network services. JFP is planning a two- phase transition: Phase 1 will be to the Global Combat Support System followed by Phase 2 transition to the Net-Enabled Command Capability when it achieves Milestone B. The user sponsor is U.S. Joint Forces Command (USJFCOM), and the lead Service (Agency) is Defense Information Systems Agency (DISA).

FY 2008/2009 Planned Transition Output: After successful completion of the JMUA and subsequent recommendation of acceptance, DISA, as Transition Manager, will follow a two phase approach to transition. Phase one will be loosely coupled with the Global Combat Support System (GCSS) until Net-Enabled Command Capability (NECC) achieves its Milestone B, at which time JFP will transition.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Modular Intermodal Distribution System (JMIDS)	1.000			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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The Joint Requirements Oversight Council (JROC) validated the capability need for JMIDS as an FY 2006 new start. The outcome of JMIDS is to demonstrate, analyze and transition joint service, all-mode containers and platforms that are equipped with Automatic Identification Technology (AIT). JMIDS will permit efficient, seamless, and visible movement of supplies through the distribution system from CONUS-based depots and vendor locations to tactical end users. This includes movement through the Seabase to support forward operating expeditionary and task force units. JMIDS technologies will enhance the ability to source load supplies that can move from origin to destination without the current intensive and inefficient handling and re-packing caused by: incompatible air and ground cargo systems; and, sorting, storing, and/or reconfiguring cargo. The goal of this JCTD is to improve the agility, flexibility, efficiency, effectiveness, responsiveness, and interoperability of the Joint Distribution System. JCTD transition funding will enable this critical warfighter capability to continue its development while transitioning to selected Program of Records. The primary outputs and efficiencies to be demonstrated in the JCTD Limited and Capstone Military Utility Assessments are: (1) Timeliness of JMIDS technologies to deliver supplies to operating forces as compared to present distribution system; (2) Capability to support transportability across different modes by reducing re-handling/ packing time; (3) Improved supply flow through the available technologies - tonnage processed per hour, time per load-out of platform, wait times per load-out; and, (4) Capability to support Command Level Situational Awareness-Accuracy of AIT tracking technology (contents, position), percent of JMICS tracked correctly, and overall improvement of situational awareness with use of AIT.

- FY 2008/2009 Planned Transition Output: Complete final MUA Report. Commenced transition to formal acquisition program(s). Complete Final CDD document and submit to JROC; Execute Milestone B Decision; Transition to Identified PM; Conduct Residual evaluations and follow-on engineering development. JMIDS JCTD scheduled completion in December 2008. Identified three spiral technologies that enhance JMIDS output. JMIDS success will be tested during a Coalition Warfare Demonstration of the JMIDS hardware with the United Kingdom that determines the value of JMIDS to coalition warfare logistics.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Rapid Airborne Reporting & Exploitation (RARE)	0.350		

The Joint Requirements Oversight Council (JROC) validated the capability need for RARE as an FY05 ACTD new start. The outcome of RARE is a time-sensitive, thermal IR, advanced geospatial intelligence (AGI) airborne capability for theater commanders. The outcome included documented capabilities to produce special measurements from the U-2 SYERS-2 and the Global Hawk ISS platforms / sensors. The RARE ACTD/JMUA was completed in FY07 and was planned for transition into the U-2, Global Hawk and AF DCGS Programs of Record. The primary efficiency and output demonstrated is an increased number and value of Engineering Initiatives (EEI's) that can be provided to the users / data exploiters with negligible additional cost in the acquisition, operation and maintenance of the collection systems. In FY 2008, the RARE capability transitioned to AF DCGS, U-2 and Global Hawk programs. The RARE capability transitioned the REAPIR/SOCET software packages and incorporated into the concept of operations of the Senior Year Electro-Optical Reconnaissance System-2 and Global Hawk sensor systems. The ACTD also delivered documentation/lessons learned to enable capability for other airborne platforms. The lead service was the U.S. Air Force, and the ACTD user sponsor was U. S. Central Command (CENTCOM).

- FY 2008 Planned Transition Output: The RARE ACTD residuals and future capability was integrated into the DCGS, Senior Year Electro-Optical Reconnaissance System-2 and Global Hawk Programs of Record. The RARE ACTD delivered documentation and lessons learned to enabled RARE capabilities for other airborne systems/platforms.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
MASTER	0.566		

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The JROC approved the capability need for MASTER as an FY 2007 new start. MASTER is now operational on the JWICS network and provides previously unavailable capabilities to Combatant Commands (Cocoms), MOCs, JIATFs, and Fleet forces. Primary capabilities are available through the Office of Naval Intelligence (ONI) portal where the MASTER capabilities are centralized to minimize logistics support while maximizing existing knowledge database access from the primary national intelligence maritime node. MASTER automatically correlated MULTI-INT to provide a global fused picture of maritime vessel movements. This ACTD was completed on 30 September 2009.

FY 2008 Output: Implementation of source continuity and display throughout the MASTER systems; ramped up of the primary system administrator so that the individual was ready to support the operations and maintenance of the systems by 30 September 2009; Migration of the MASTER dependent high assurance guards from their current location at NRL to the guard infrastructure at ONI; migrated of the MASTER NTM data feeds from NRL to ONI; completed Operational Utility Assessment. Targeted Programs of Record include ONI's Military Intelligence Program, Defense Intelligence Agency's GALE PMO and National Security Agency's National Integrated Processing Services (NTIPS) Program.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Hyperspectral Collection and Analysis System (HyCAS)		2.000	6.000

The Hyperspectral Collection and Analysis System (HyCAS) was validated by the JROC as an FY 2002 start. Funding is needed to enhance the Spectral Airborne Reachback Cell (SPARC) hyperspectral imaging (HSI) exploitation and processing system. This SPARC enhancement will deliver a 2nd/3rd phase HSI exploitation cell by leveraging and expanding the National Air and Space Intelligence Center (NASIC) infrastructure to support 20 HSI analyst workstations, data archive, and tasking, processing, exploitation and dissemination software. This funding will also provide in-depth material identification and spectral anomaly detection analysis that is so crucial to Overseas Contingency Operations (OCO). This funding also leverages Air Force sensors and UAVs.

The ACTD which leverages Air Force funding of sensors represents a quantum leap forward in the management of hyperspectral data. The airborne hyperspectral concept is an integration effort which will deliver four Air Force COMPact Airborne Spectral Sensors (AF COMPASS), four real-time processors and four ground station processing software packages to the Predator Unmanned Aerial Vehicle (UAV) program of record. AF COMPASS is a tactical asset designed to operate at an altitude of 15-20K feet with area coverage of approximately 600-900 sq km/hour. AF COMPASS provides a wide area search capability and can cross-cue the onboard Predator Multispectral Targeting System (MTS). The airborne hyperspectral capability will enhance the effectiveness of the Predator weapon system by finding targets and queuing the MTS ball to fix an object for tracking, targeting and engagement. The AF COMPASS sensor can also detect, locate and identify materials associated with Combat Search and Rescue (CSAR) operations and can distinguish between targets and decoys. AF COMPASS ground station processing software will allow an operator to view high resolution imagery (HRI) chips created based on either signature or anomaly detections. Chips are painted on a display which shows the path of the aircraft and the signature anomaly hits obtained by the real-time processor.

FY 2009 Planned Output: Funded the enhanced Spectral Airborne Reachback Cell (SPARC) hyperspectral imaging (HSI) exploitation and processing system. The SPARC enhancement will deliver a 2nd/3rd phase HSI exploitation cell. The SPARC funding will also cover 20 dedicated airborne HSI analysts allowing for two analysts per operational sensor. This cell is essential to provide in-depth material identification and spectral anomaly detection analysis as a reachback to the 1st phase analyst and to satisfy 2nd/3rd phase intelligence requirements that non-HSI sensors currently cannot satisfy. Integrated and refined system for full operational production capability. The AF COMPASS sensors and exploitation infrastructure from this initiative will be leveraged to learn and further refine operational HSI capabilities. The knowledge gained will in turn be used to refine full production models for future operational use.

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FY 2010 Planned Transition Output: HyCAS will use a two-pronged approach for extended use of residual capability created in FY08. Follow-on funded effort for four additional HyCAS sensors and exploitation capability for the outyears. Targeted Programs of Record: Predator Unmanned Aircraft System and Distributed Common Ground Systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Comprehensive Maritime Awareness (CMA)		2.200		

The Joint Requirements Oversight Council validated the capability need for CMA as an FY 2006 new start. The outcome of CMA is demonstration and transition of technologies and operations concepts showing the value of information sharing and effective information management for improving global Maritime Domain Awareness. CMA will demonstrate the value of both interagency and international (Republic of Singapore) information sharing. CMA will demonstrate data management techniques such as automated anomaly detection and threat evaluation, and application of the Department of Defense Net-Centric Data Strategy. CMA is a 4-year project sponsored by U.S. Pacific Command, U.S. Northern Command, and U.S. European Command. Initial capabilities were demonstrated and operated in FY 2007, with advanced capability spirals later in FY07 through early FY 2009, and transition support in FY 2009. The lead Service is U.S. Navy. The primary outputs and efficiencies to be demonstrated in CMA Military Utility Assessments are (1) percent increase in the number of maritime tracks and identified tracks in U.S. military, interagency, and coalition maritime operational pictures; (2) percent increase in numbers of maritime contacts with amplifying information (such as crew list, cargo manifest, port-of-call history, etc.); (3) percent increase in numbers of vessels of interest monitored by maritime intelligence analysts; (4) number of automated anomaly detections and threat alerts provided to maritime intelligence analysts; (5) increase in number of agencies (U.S. and international) engaged in information sharing across a common service oriented architecture.

FY 2009 Planned Transition Output: To sustain capabilities at CMA node sites (National Maritime Intelligence Center, HQ Naval Forces Europe, Maritime Intelligence Fusion Center Atlantic, Maritime Intelligence Fusion Center Pacific). Complete Joint Capabilities Integration and Development System documentation for Navy Program of Record. The Navy has committed significant program-of-record funding for further development, proliferation, and long-term sustainment of CMA capabilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Zephyr		2.000	2.000	

The Joint Requirements Oversight Council validated Zephyr JCTD as an FY 2008 start. The resulting capabilities from the development, integration, and demonstration of an operationally capable prototype for this Joint Capability Technology Demonstration (JCTD) are primarily a Solar Powered High Altitude Long Endurance (HALE) autonomous platform, which can carry many different payloads, which includes a communications relay node. The Zephyr is a fixed wing, solar powered, unmanned aircraft that is capable of autonomous operations and provides global, high-precision station keeping and payload integration capability for intelligence, surveillance, reconnaissance (ISR) to meet today's Persistent Surveillance needs. This JCTD leverages United Kingdom (U.K.) and U.S. Special Operations Command (USSOCOM) funding to provide the Warfighter with extended tactical communications over a large geographic area. Improved communications in high-risk environments gives forces increased effectiveness in rapid decisive operations. Additional payloads will be integrated and tested in FY 2009. These will include wideband data network nodes and SIGINT payloads. In FY 2010, Electro-Optics/Infrared (EO/IR) payloads will be flown on the U.K. assets to evaluate military utility. At the end of the demonstration phase Zephyr executed Limited Utility Experiment 2. Completed flight evaluation of SINGCARS communications relay package.

FY 2009 Planned Output: To initiate U.S. production Zephyr test assets. Flight testing of the AGIG wideband network relay and the integration and testing of lightweight SIGINT payload.

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FY 2010 Planned Transition Output: Will complete the Military Utility Assessment phase and U.K testing of EO/IR payloads. The U.S. Central Command (USCENTCOM) is seeking aggressive transition to production for a urgent operational requirement in theater. The Zephyr team is working to transition Zephyr to a U.S. production partner. The residuals are 2 x Zephyr high-altitude, long-endurance unmanned aircraft systems complete with payloads and ground stations. Training package will include deployment procedures and techniques, user maintenance manuals, and Concept of Operations (CONOPS), and Tactics, Techniques, and Procedures (TTP).

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Regional Maritime Awareness Capability (RMAC)		0.500	0.500	

The Joint Requirements Oversight Council (JROC) validated the capability need for RMAC as an FY 2006 new start. RMAC JCTD is a coordinated DoD and Department of State project to build maritime awareness capacity for friendly nations. The outcome of RMAC will demonstrate and transition a regional maritime awareness solution set consisting of sensors and their indigenous processors, communications systems, and software, suitable for nations with little or no previous maritime awareness capability. The initial application of the capability will enable friendly nations in the Gulf of Guinea region to develop maritime domain awareness in the regional waters, and share their data with each other and with the U.S. This solution set will be equally applicable to local sensor sites, national operations centers, regional coordination centers, and external users. The sensors and processors include Automated Information System (AIS), surface search radars, video cameras, and night vision devices. Communications will be done through UHF/VHF Radios, W3C-compliant, commercially secure, IP-based networks and cell phones. RMAC's outputs and efficiencies include surveillance, tracking, fusion and analysis, vessel tracks, and multi national information sharing and collaboration capabilities. The current Transition Strategy will deliver: 1) Residuals: AIS, radars, video cameras, night vision devices, radios, cell phones; 2) Documentation: training package, software / hardware specifications, site surveys, frequency management plan and user maintenance manuals, CONOPS / TTP; 3) Post-JCTD acquisition strategies for procurements of capability will be developed by host nations and U.S. Program Managers pending outcome of demonstrations and assessments. The User Sponsor is the U. S. European Command (USEUCOM) and the lead service is the U.S. Navy.

FY 2009 Transition Output: Complete transition package and testing for software transition to U.S. Naval Expeditionary Command Capability Program of Record (transition agreement is in place).

FY 2010 Planned Transition Output: Leverage Theater Security Cooperation success of RMAC in Africa, particularly the strategic Gulf of Guinea region, by establishing remote maintenance coordination capability, installing relevant software upgrades from U.S. program of record, and conducting emergency service response. Conduct periodic in-country training. Coordinate RMAC activities with USEUCOM Theater Security Cooperation plan.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Coalition Joint Spectrum Management Planning Tool (CJSMPT)		1.000		

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The Joint Requirements Oversight Council (JROC) validated the requirements for the capabilities needed from CJSMP for an FY 2006 new start. The outcome of CJSMP is force structure driven coordination of friendly force communications and Counter-Improvised Explosive Devices (C-IED) jammers through software based spectrum management tools to enable the Warfighters to synchronize electromagnetic spectrum allocation and usage more effectively and efficiently. CJSMP is a three year project under the sponsorship of US European Command with direct engagement by US Central Command, and included phased software deliveries and demonstrations in FY 2007 and FY 2008. The US Army is the technical lead Service for the JCTD and had agreed to sustain the delivered capability in the USEUCOM and USCENTCOM theaters until transition of the initial capabilities to the Defense Information Systems Agency (DISA), the lead Agency for the Global Electromagnetic Spectrum Information System program. The primary output and efficiencies to be demonstrated in the JCTD Military Utility Assessment scheduled in early FY 2009 are (1) interfaces to currently disparate and isolated data bases into a virtual knowledge repository, (2) interactive emitter, receiver and terrain models permitting user visualization of spectrum usage, and (3) spectrum use plans for operational coordination, scenario development and course of action evaluation.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Precision Airdrop System (JPADS)		2.187	0.761

The Joint Requirements Oversight Council (JROC) validated the capability need for JPADS as an FY 2004 new start. The outcome of JPADS is to demonstrate a fast, flexible, direct projection-based distribution system to sustain rapidly deployed forces at any global destination - strategically, operationally, and tactically. The primary output and efficiencies are to demonstrate a high-altitude (25,000 ft. Mean Sea Level (MSL)) autonomous offset airdrop capability (goal 8-25 miles offset) with the option to deliver separate and distinct payloads (up to 10,000 lb total, full rigged weight, minimum of 8.5Klbs of usable payload) to multiple locations from one release point to within a 250 meter (threshold) Circular Error Probable (CEP) (50 meter CEP) objective. This effort focuses Army and Air Force programs and initiatives on meeting joint airdrop requirements. JPADS will provide a seamless and flexible system of systems approach, providing materiel resupply capabilities to meet dynamic in theater operational requirements and the strategic requirement of the CoComs worldwide no later than 24 hours from the request. JPADS was a four-year project that completed Advanced Concept Technology Demonstration (ACTD) development and demonstration in FY 2008 which transitioned to United States Army (USA) Program Manager Force Sustainment Systems (PM FSS), U.S. Air Force (USAF) Mobility Systems Wing systems (Mission Planner (MP) hardware) and the USAF Electronic Systems Command (MP Software). Transition accomplished to date: USAF Mission planner to both Afghanistan and Iraq, ongoing integration of MP into the Marine Corps C130J and into USSOCOM/USMC navigational aid for Military Free Fall (MFF) systems.

FY 2008 Output: Transitioned residual systems to USSOCOM (USASOC) units that requested the residual systems by an approved ONS/MNS. Continued to execute interim transition with users in conjunction with PORs to include training and numerous weeks of airdrops with remaining systems available. Executed the first of three planned extended user evaluation (EUE) during DoD and NATO sponsored Precision Airdrop Technology Conference and Demonstration (PATCAD) Oct 07 and Precision Airdrop Capability Demonstration May 08. Extended user training completed in September 2008.

FY 2009 Planned Transition Output: The ACTD will transition high-altitude, aircraft deployable, autonomous, airdrop systems, and in-flight mission planning with wireless communication to guidance, navigation, and control systems to the Army Product Manager, Force Sustainment Systems and Air Mobility Command's Combat Operations.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Advanced Active Denial Scanning Antenna System		1.600	

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This project was Congressionally added in the FY 2009 appropriation. The Joint Non-Lethal Weapons Directorate (JNLWD) developed the Active Denial System (ADS) an Advanced Concept Technology Development (ACTD) effort, with associated funding ending in FY 2007. These funds will be used for advanced development of planar scanning antenna technology that is required for the next generation active denial technology weapon.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Event Management Framework (EMF)		0.500		

The Joint Requirements Oversight Council (JROC) validated the capability need for EMF as an FY 2006 new start. The outcome of EMF will demonstrate and transition information sharing through improved comprehensive analysis, situational awareness, and reduction of information overload and information discovery. Outputs and efficiencies include a correlation module that allows it to identify associations among data sets, an alert module to quickly acquire required data, a visualization module to graphically display pertinent data, a CCIR module to obtain critical information, an assessment module to answer the 5 Ws, and an export module to share relevant data with COIs through an exfiltration module to protect privacy. The User Sponsor is U. S. Northern Command (USNORTHCOM), the transition agency is DISA.

- FY 2008 Output: Spiral 1.1 and 1.2 completed. Completed two services: EMF Semantic Correlation Service (EMF-SCS) and EMF Event Alerting Service (EMF-EAS).

- FY 2009 Output: Deliver Spiral 2.0 and 3.0. Conduct MUA. Working with NCES Program Office to support Federated Search with EMF Correlation Service. The EMF ACTD is scheduled to complete in September 2009. Secure SIPRNet accreditation.

- FY 2010 Planned Transition Output: Transition as a component of the National Senior Leadership Decision Support System (NSLDSS) JCTD. Host at DISA DECC to provide interim services to Cocoms, including USNORTHCOM pending transition to NECC.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Enable Theater Access (JETA-SPOD)			1.500	

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The Joint Requirements Oversight Council (JROC) validated the need for JETA-SPOD capabilities as a FY 2006 new start. The outcome of JETA-SPOD is to develop and demonstrate: a Lightweight Modular Causeway System (LMCS) transportable by and employable from intra-theater sealift vessels such as the JHSV or other current Army/Navy watercraft; and an austere port Decision Support Tool for selection of optimal sites from multiple austere SPOD options. The capabilities proposed for development in this ACTD will optimize the use of the Joint High Speed Vessel (JHSV), current Army/Naval watercraft, and Lines of Communication (LOC) bridging requirements by providing increased and more rapid flow of combat power and sustainment through multiple theater austere seaport locations. This provides to Joint/Combined Force (J/CFC) commanders a means to mitigate threat anti-access activities and increases flexibility to conduct operational maneuver from strategic distances. JETA-SPOD ACTD is a three-year project under sponsorship of U.S. Pacific Command (USPACOM), with completion of development and demonstration by the end of FY 2008; and transition to U.S. logistics systems as early as FY 2009. The lead service is U.S. Army. The primary outputs and efficiencies to be demonstrated in the ACTD Military Utility Assessment (MUA) are: 1) the LMCS will reduce weight, volume, and deployment time compared to existing military causeway and bridging systems; 2) the operational parameters for evaluating the military utility of the LMCS are based on a quantitative and qualitative comparison to the capability provided by the existing Modular Causeway System (MCS); 3) LMCS will result in a reduction in weight and volume by 50% over the MCS; a reduction in deployment time by 50% over the MCS; and elimination of in-water connections; 4) the Decision Support Tool capability equates to an increase in availability of throughput prediction information for 50-80% of worldwide small ports; and 5) the combination of LMCS and the Decision Support Tool includes a five-fold increase in the number of JHSV-compatible ports and doubling of the port throughput rate. LMCS Output includes incorporation of state-of-the-art connector and tensioning technology; innovative recovery system applicable to multiple military/civilian platforms; self-locking and strap tensioning technologies; high strength fabrics for robust, lightweight floatation technology that quickly inflates/deflates for rapid LMCS recovery; puncture/abrasion resistant floatation components; lightweight decking materials; and common 8x20 rapid transport footprint design. The efficiency is that the transport (land/sea) cost of moving causeway capabilities into austere SPODs will be significantly reduced; and causeway capabilities will arrive in theater more rapidly with a smaller logistics footprint. Austere Port Decision Support Tool Output includes query-able austere world port data; a port characterization model; rapid port enhancement tool; austere port throughput simulation; a comprehensive set of environmental and physical factors affecting ingress/egress throughput rates; and parametric algorithms for throughput rates in small ports and rates for planning and execution of vessel offload operations developed with an open source tool; user friendly Graphical User Interfaces (GUI); and runs on a laptop computer. The efficiency is that the Warfighter will possess the flexibility and a broader range of options and tools to establish austere seaports as strategic or operational maneuver entry points with a greater assurance of success. The transition strategy for LMCS and the Decision Support Tool is to establish Programs of Record under the guidance of two Transition Managers: Product Director, Army Watercraft Systems (PD AWS) and USTRANSCOM, respectively.

FY 2008 Output: Developed final LMCS and Decision Support Tool CONOPS; finalized extended user evaluation and Interim Transition Planning; conducted LMCS full-scale functional system demonstrations; conducted CONUS LMCS testing; completed system integration and incorporated lessons learned; completed LMCS fabrication; conducted Decision Support Tool Limited User Evaluations (LUE); delivered final version of Decision Support Tool; completed Training Plan; conducted user training in preparation for MUA; completed MUA/Final Demonstration in September 2008; developed final MUA and ACTD report; and planned transition of LMCS and Decision Support Tool to Programs of Record in FY 2011.

FY 2009/2010 Planned Output: Deliver pre-transition and interim capability/residuals to the user (includes LMCS system and Decision Support Tool with Final Data Set); plan the use of LMCS and Decision Support Tool in exercises for continued refinement and continued socialization for transition; JETA-SPOD ACTD scheduled completion date is in FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Critical Runway Assessment and Repair (CRATR)			1.500

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The Joint Requirements Oversight Council validated the capability need for CRATR as an FY 2008 new start. The outcome of CRATR is to develop the capability to conduct rapid airfield damage assessment, determine the minimum airfield operating surface required, identify unexploded ordnance, and repair runway damage to enable critical airfields to rapidly return to operation. The CRATR JCTD will evaluate existing, new and commercial technologies and procedures, and integrate the most successful of these technologies and procedures to develop both material and equipment solutions. The primary outputs and efficiencies to be demonstrated in the JCTD are: 1) Successful solutions from early demonstrations will be used to create an interim modular repair kit which will form the Spiral One capability for theater; 2) After a successful final demonstration, products from the CRATR QRF/JCTD will be packaged into a final modular repair kit that will transition to the USAF Airfield Damage Repair (ADR) program. CRATR is a 3-year project sponsored by U.S. Pacific Command (USPACOM). Lead service is the U.S. Air Force. Air Combat Command is the Transition Manager. In FY 2008 CRATR conducted technology demonstrations to identify the best capabilities available for demonstration. As part of the project demonstration phase funded in BA3, CRATR demonstrated and began operational assessment of crater filling and capping capabilities, as well as damage assessment techniques and platforms and in FY 2009 sent successful spirals from FY 2008 demonstrations to Kadena AFB, Japan. Conduct a demonstration of CRATR capabilities at Kadena in April 2009. Finalized CONOPS documentation.

FY 2010 Planned Transition Output: Conduct live aircraft test in CONUS during final operational utility assessment. Complete final assessment report and send residuals with operational utility to forward-based airfields. Conduct SDD and transition to ADR Program of Record. Plan to complete JCTD in September 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Global Observer (GO)			1.411	

The Global Observer JCTD was a selected by the Joint Requirements Oversight Council (JROC) as an FY 2008 start. The joint, interagency and multinational forces lack a dedicated, persistent, and wide-area global persistent surveillance platform. The Global Observer Platform has the potential to support multiple intelligence mission areas: 1) Intelligence, Surveillance, Reconnaissance, and Targeting (ISR-T); 2) Broadband Communications Relay Node; 3) Information and Psychological Operations (PSYOP) Broadcasting, with a limited forward footprint.

The Global Observer (GO) JCTD will address the capability gaps identified above with a hydrogen powered high altitude long endurance (HALE) unmanned aircraft system (UAS). The use of hydrogen fuel provides an order of magnitude increase in UAS platform endurance, from hours to days. Increased on-station time reduces the number of platforms required for persistence, allowing a reduction in forward basing infrastructure and support costs. Operation at high altitudes provides a wide field of regard for payloads and reduces the platform's vulnerability to many threats. As part of the demonstration phase funded with BA3 funding initiated the Flight Testing of 7-14 Day Hydrogen Fueled HALE platform.

FY 2010 Planned Transition Output: The residual package will be transitioned to Air Force Special Operations Command for potential use in FY 2011 to support its core mission of intelligence, surveillance, and reconnaissance with the persistent operations using the Electro-Optics/Infrared and communications relay payloads.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Multi-Mission Electro-Optical System (JMMES)			2.000	

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The Joint Requirements Oversight Council validated the capability need for JMMES as an FY 2007 new start. The outcome of JMMES is demonstration and transition of airborne sensors and automated processing for automatic detection of items of interest for Joint Service, Coalition, and Interagency partners. The JMMES project will demonstrate use of advanced multi-spectral sensors in an aircraft turret compatible with existing turret mounts in US Navy, US Army, Drug Enforcement Agency, and British and Canadian aircraft, as well as future planned unmanned air systems. The project will develop and demonstrate automatic processing and automated operator cueing for targets such as submarines, mines, targets under trees, illicit crops, and search-and-rescue targets at sea. The primary outputs and efficiencies to be demonstrated in JMMES Military Utility Assessments are: (1) ability of JMMES to recognize targets of interest, in terms of (a) percent of auto detections and auto cues that are relevant, (b) distance error of auto detect and auto cue reports, (c) timeliness of reports (seconds) to decision makers; and (2) ability of JMMES to defeat denial and deception efforts, in terms of (a) percent of denial and deception efforts defeated, (b) where and when JMMES applies (operating environments, seasons, time of day, range, etc.), (c) percent of time operable during missions, and (d) reliability and logistic support requirements. JMMES is a 3-year project sponsored by U.S. Pacific Command and U.S. Southern Command. Initial capabilities were demonstrated and operated in FY 2007, with demonstrations against additional targets with additional aircraft types planned in FY08 and FY09. Transition activities began in FY 2007, leading to likely transition to program of record in FY 2012, a two-year slip in original program of record plan. BA-4 will provide a funding bridge to the Navy transition Program of Record in FY 2012. The lead Service is U.S. Navy. As part of the demonstration phase funded in BA3, flight tested second generation JMMES system, collected data for algorithm development. Continued algorithm testing for mine detection, search and rescue, counter concealment and deception, and illicit crop detection. Completed Project Agreement with Canada, enabling Canadian participation in additional algorithm development and testing aboard Canadian aircraft. Integrated sensors for third generation JMMES system. Informed that targeted Navy Program of Record for transition will slip to FY 2012, therefore planned bridge funding and activities to bridge the FY 2010 gap. In 2009 at the end of the project demonstration phase, completed flight testing and conduct military utility assessment. Support ongoing transition and preparation for FY 2010 bridge activities (bridge to FY 2012 transition). Complete Concept of Operations, Tactics/Techniques/Procedures, and System Architecture documentation.

FY 2010 Planned Transition Output: Install and sustain JMMES residual in selected Fleet P-3, H-60, or MQ-8B aircraft, as risk reduction to future P-8A, MH-60R, and MQ-8B aircraft. Install and sustain JMMES residuals in selected aircraft for SOUTHCOM operations, such as US Coast Guard aircraft, Customs and Border Protection aircraft, and Drug Enforcement Agency aircraft. Support operations addressing SOUTHCOM capability gaps.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Theater Effects Based Operations (TEBO)			1.500

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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The Joint Requirements Oversight Council (JROC) validated the capability need for the TEBO ACTD as a new start in FY 2004. The outcome of the TEBO ACTD is to provide Combatant Commanders (Cocoms) with enhanced capabilities to analyze, plan, execute, and assess Effects-Based Operations (EBO) at the strategic and operational levels by integrating computer-aided decision support tools, Concept of Operations (CONOPS), and Tactics, Techniques and Procedures (TTPs) into the command's Mission Architectures. The TEBO ACTD is a six-year project under the sponsorship of U.S. Pacific Command (USPACOM) and Combined Forces Command/U.S. Forces Korea (CFC/USFK) as the Operational User. Completion of development and demonstration is planned for by the end of CY 2009 with transition to the Net Enabled Command Capability (NECC) System of Record in 2010. The lead service is U.S. Army. The primary outputs and efficiencies to be demonstrated in the TEBO ACTD Military Utility Assessments are: (1) Exploit existing knowledge base(s) of strategic, operational and tactical environments (e.g. Operational Net Assessments [ONA] - critical capabilities and vulnerabilities, centers gravity [COG] and nodal analysis, (2) Facilitate collaborative effects-based campaign planning within a combined/Joint environment, (3) Support execution with prioritization of strategic and operational levels of effort, synchronization of actions, and battle tracking, (4) Comprehensively assess and forecast progress toward the desired end state by analyzing observed direct and indirect effects. At the end of the demonstration phase in 2008, the LMUA was completed at KEY RESOLVE 2008. Final MUA August 2008 (UFG '08). Final enhancement and integration of COA planning capabilities through the use of modeling and simulation. Developed strategic assessment capability to provide interagency, strategic level inputs to the CG operational perspective and improvements to timeline visualization. Synchronization matrix delivered. Begin transition of TEBO Knowledge Management Services into Army Battle Command Systems (ABCS) Program of Record. In 2009, user assessment in USFK and 101st Airborne. Begin transition to DISA DECC for interim operations (Virtualization). Secure SIPRNet accreditation. Scheduled completion of the ACTD demonstration phase is September 2009.

- FY 2010 Planned Transition Output - Host at DISA DECC to provide interim services to Cocoms, including CENTCOM, USFK, CJTF 101st, and JFCOM, pending transition to NECC Federated Architecture. NECC delayed to FY 2011. Use the Federated Development and Certification Environment (FDCE) to certify select services into NECC architecture.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Mapping the Human Terrain (MAP-HT)		0.500	1.000

The Joint Requirements Oversight Council (JROC) validated the capability need for MAP-HT as a new start in FY 2007. The MAP-HT JCTD demonstrates technologies, concepts, and architecture paths to integrate a multimodal human computer interface (entity navigators, timeline, link charts); allows link chart web clients to view entities in correlated database; adds Human Terrain reporting formats and C/JMTK compliant geospatial visualization tool; integrates to an entity extraction tool, possibly as a spin-off from the CHAMPION JCTD; adds export utilities to support interoperability between HDWS and HTS. Products from MAP-HT have been requested for operational use in OIF. The user sponsor is U.S. Central Command (USCENTCOM). The MAP-HT JCTD is targeting the DCGS-A Human Domain Workstation as the Program of Record. There are currently 50+ HDWS currently fielded in support of OIF. This accelerated fielding to a Program of Record is based on the pre-JCTD foundation, built using CTTF, JIEDDO, and AS&C funds. MAP-HT is currently deployed with six Human terrain teams under the Human Terrain System (HTS) project. In 2008 during the project demonstration phase the MAP-HT JCTD integrated capabilities into the Human Domain Workstation (HDWS) and field capability in support of OIF. Funds initiated the collapsing of the two systems: HTS and HDWS. Human Terrain Teams (HTT) generated structured reports using the HDWS Reporting Tool. Additionally, integration of a multi-modal analytical interface from the HTS into the HDWS was accomplished. The combination of structured reporting from HTTs and a significantly improved analytical interface improved the analytical capabilities of both the Human Terrain System and intelligence analysts. Human Domain Users within the theater benefited from this early transition and implementation within OIF.

FY 2009 and 2010 Planned Transition Output: Sustain the unclassified human terrain portal; sustain the human domain toolkits and associated training of users; HW/SW refresh for the interim fielded capabilities; sustainment of residuals to integrate with DCGS-A V4 migration spirals; support to JCIDS effort creating Human Terrain Program of Record.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)				PROJECT P649
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Coordinated Real-time Engagement (JCRE)				

The Joint Requirements Oversight Council (JROC) validated the capability need for JCRE as an FY 2005 start. The outcome of JCRE will be to develop the CONOPS and the GIG-enabled software that enables Joint Real-Time Operations and Engagement across multi-Combatant Command (Cocom) Theaters and Echelons. JCRE will support Joint Operations by providing Net-Centric Command and Control Tools that greatly enhance Planning and Execution across multiple Cocom. These tools will be provided as web services, so they can easily be extended to support Combined Operations as directed by the Operational Sponsor. The JCRE capability will be achieved by extending and integrating the following technologies: Joint Force Global Situational Awareness (SA) Tools; Joint Force Engagement Packages; and Joint Force Synchronization Tools. These JCRE technology components will be implemented using a Service Oriented Architecture (SOA) with distributed service orchestration. These JCRE technologies, tested on the Global Information Grid (GIG), will help validate whether the evolving GIG IP architecture and enterprise services can support the time sensitive performance requirements for global operations. Output and efficiencies include: percent of relevant data that is properly synchronized; percent of global operation centers that have Synchronization awareness; percent of synchronization problems that go undetected for greater than 10 minutes; average time to detect a synchronization problem; average time to determine impact of synchronization problems on effects; time to assemble and organize global effects; workload to assemble and organize global effects; time to synchronize global actions, capabilities, and resources; workload to synchronize global actions, capabilities, and resources; number of resynchronizations / number of original synchronizations (synchronization robustness); time to create a globally synchronized operational plan. The lead service is the U.S. Navy and the lead Cocom are U.S. Strategic Command (USSTRATCOM) and U.S. Special Operations Command (USSOCOM). As part of the project demonstration phase the demonstration #3 was completed. Demonstration of Joint Force Global Situational Awareness Tools, Joint Force Engagement Packages, and Joint Force Synchronization Tools in a battle staff exercise. A Joint MUA was performed in conjunction with the final demonstration (TW08). Technology Transition Agreement (TTA) signed with NECC. Transition select capabilities as a component of the National Senior Leadership Decision Support System (NSLDSS) JCTD. Begin transition to DISA DECC for interim Cocom operations (Virtualization). Secure SIPRNet accreditation.

- FY 2010 Planned Transition Output: Host at DISA DECC to provide interim services to Cocom, including USSTRATCOM, pending transition to NECC Federated Architecture. NECC delayed to FY 2011. Use the Federated Development and Certification Environment (FDCE) to certify select services into NECC architecture.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Force Protection Advanced Security System (JFPASS)				

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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The Joint Requirements Oversight Council validated the capability need for JFPASS as an FY 2008 new start. JFPASS addresses the validated problem that current force protection technologies and concepts of operation do not provide a comprehensive, effective, and sustainable Joint force protection capability. Fielded systems do not provide comprehensive situation awareness, absorb too much manpower, and are too costly with many variants and redundancies. The outcome of JFPASS is to demonstrate and transition an integrated joint force protection Command and Control architecture, providing rapid situation awareness where needed, decision support, and more effective force protection with reduced workload through systems integration. The primary outputs and efficiencies to be demonstrated in the JCTD are: 1) numbers of currently distinct force protection systems that are integrated for common situation awareness; 2) decreased time required to provide situation awareness to all in chain of command with force protection response missions; 3) decrease in operations center manning and workload required to maintain force protection situation awareness and manage situation responses. JFPASS is a 3-year project sponsored by US European Command. The project will conduct an initial demonstration and limited assessment after one year, to be followed by in-theater installations and operational utility assessment in the second year. Army, Navy, and Air Force force protection experts are participating and contributing funding and expertise to the demonstration of this Joint force protection capability. The US Navy is providing the Technical Manager, US Air Force provides the deputy Technical Manager, and US Army provides the Transition Manager. This project is aligned with the Joint Staff Installation Unit Base Integrated Protection Capabilities Based Assessment process. In the demonstration phase in 2008/2009/2010 JFPASS completed participation in Joint experiments to assess situation awareness and systems integration concepts for access control, vehicle inspection, intrusion detection, unmanned sensor, waterside security, and CBRN systems. Completed project Implementation Directive and draft Management Plan. Completed equipment selection for in-theater Operational Demonstration 2. Conducted technical demonstration 1, and planning and concepts of operation for Operational Demonstration 1. Refine situation awareness and systems integration architecture. Complete Operational Demo 1 and limited utility assessment at CONUS facility. Install integrated capability at high priority EUCOM-selected base. Conduct Operational Demonstration 2. Continue transition planning. Complete utility assessment and JCTD.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Airborne Weapons Surveillance System (AWSS)				

The Joint Requirements Oversight Council (JROC) validated the capability need for AWSS as an FY 2007 new start. Funding was secured and planning finalized for FY 2008 start. The output of AWSS will be demonstration of a capability to immediately detect enemy artillery, rocket, and mortar fires, classify those fires, and relay locations of enemy firing units to coalition counter-fire systems. The JCTD will use advanced staring non-imaging infra-red wide field-of-view detectors, together with electro-optic video, aboard unmanned air vehicles. The efficiencies of the AWSS system will be (1) percent of detections of artillery fires at ranges of 20 km or greater, (2) location accuracy of hostile firing units, and (3) transmission time of hostile fires and hostile firing locations to coalition counterfire units, in efficient machine readable formats. The sponsor of AWSS is U.S. Pacific Command, and Republic of Korea is the coalition partner. Operational management is from Commander US Forces Korea and Republic of Korea Army. Technical lead is Army Aviation & Missile Research, Development and Engineering Center, and transition lead is Army Program Manager Unmanned Air Systems. Technical demonstrations will occur in the US using US Army manned and unmanned air vehicles, with operational assessment in forward areas using a Republic of Korea unmanned air vehicle.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010				
Advanced Concept Technology Development (ACTD) RDT&E BA 3 line # 44	1.552	1.194					
Joint Capability Technology Demonstration (JCTD) RDT&E BA3 Line#36	202.976	207.096	198.352				

Comment:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

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In FY08 all ACTD funding transferred to the JCTD program. This completed the transition to the JCTD model that began in the FY06 President's Budget. The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The initial funding lines (program elements (PE)) are outlined in the next table. The PEs in the table (with the exception of the ACTD BA3 PE transferred to the JCTD BA3 PE in FY08) represents the JCTD model. The model contains a BA3 development arm as well as BA4 transition arm. Under the new JCTD process, the pace of development will be accelerated to two to three years. Only the JCTDs that demonstrate the highest military utility are considered for the transition funding in the JCTD BA4 Transition PE. Not all JCTDs require transition funding, many projects have a very clear transition path, however, some projects that demonstrate significant military utility require transition funds to "bridge" them to a program of record. Any promising remaining ACTD may receive transition funding during the transition period to the JCTD program. Beginning in FY07 all new starts are JCTD only. Refer to the specific Budget Exhibit for more details on each funding line.

D. Acquisition Strategy:

Only the ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in this program element. The primary focus of the BA4 transition funding is to develop and refine the documentation needed to ensure a successful transition of the developed products either into existing programs of record (POR) or to develop the package necessary to establish a new POR. In very select, compelling cases, this funding may be used to correct discrepancies in products, identified during the MUA, to help ensure a smooth transition to production or operations.

In FY 2008-2010, there are several candidates for the transition bridge funds. The candidates are: Active Denial System (ADS); Airborne Weapons Surveillance System (AWSS); Counterintelligence/Human Intelligence Advanced Modernization Program - Intelligence Operations Now (CHAMPION); Coalition Joint Spectrum Management Planning Tool (CJSMPT); Comprehensive Maritime Awareness (CMA); Critical Runway Assessment and Repair (CRATR); Event Management Framework (EMF); Extended Space Sensors Architecture (ESSA); Foliage Penetration Signature Aperture Radar (FOPEN); Global Observer (GO); Hyperspectral Collection and Analysis System (HyCAS); Joint Coordinated Real-time Engagement (JCRE); Joint Enable Theater Access-Sea Ports of Debarkation (JETA-SPOD); Joint Force Projection (JFP); Joint Force Protection Advanced Security System (JFPASS); Joint Modular Intermodal Distribution System (JMIDS); Joint Multi-Mission Electro-Optical System (JMMES); Joint Precision Airdrop System (JPADS); Mapping the Human Terrain (MAP-HT); Rapid Airborne Reporting & Exploitation (RARE); Regional Maritime Awareness Capability (RMAC) and Zephyr UAV (Zephyr).

In FY09, the Hyperspectral Collection and Analysis (HyCAS) ACTD has been selected to receive transition funding to advance Airborne Hyperspectral capabilities. Sensors associated with the HyCAS ACTD have proven effective in operational demonstrations supporting Operation Enduring Freedom (OEF). Other probable successful candidates are: Large Data, CHAMPION, JPADS, CMA, and CJSMPT.

In FY10, the Regional Maritime Awareness Capability (RMAC) JCTD requires transition funding to leverage Theater Security Cooperation success of the regional maritime awareness solution set in Africa, particularly the strategic Gulf of Guinea region, by establishing remote maintenance coordination capability, installing relevant software upgrades from a US Program of Record, and conducting emergency service response.

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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Additionally, in FY11, the Global Observer (GO) JCTD will need bridge funding in order to prepare for its inclusion in POM 12. Global Observer Platform is a hydrogen powered, High Altitude Long Endurance (HALE) unmanned aircraft system (UAS) that works as a dedicated, persistent, and wide-area global persistent surveillance platform and has the potential to support the multiple intelligence mission areas to include Intelligence, Surveillance, Reconnaissance, and Targeting (ISR-T), a Broadband Communications Relay Node and Information and Psychological Operations (PSYOP) Broadcasting, with a limited forward footprint. High altitude performance provides a wide field of regard for payloads and reduces the platform's vulnerability to many of today's conventional and asymmetric threats.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
4 - Advanced Component Development and Prototypes (ACDP)			0604648D8Z - Joint Capability Technology Demonstration (JCTD)									P649		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	FY 2011 Cost	FY 2011 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Mapping the Humain Terrain (MAP-HT)						500	3-4Q	1000	1-4Q	1000	1-4Q		2500	
Active Denial System (ADS)				150	2-4Q								150	
Joint Force Projection (JFP)				650	2-4Q	1000	1-4Q						1650	
Joint Modular Intermodal Distribution System (JMIDS)				1000	2-4Q								1000	
MASTER				566	3-4Q								566	
Hyperspectral Collection and Analysis (HyCAS)						2000	1-4Q	6000	1-4Q	6000	1-4Q		14000	
Joint Precision Airdrop System (JPADS)						2187	2-4Q	761	2-4Q				2948	
Joint Enable Theater Access-Sea Ports of Debarkation (JETA-SPOD)								1500	1-4Q				1500	
Comprehensive Maritime Awareness (CMA)						2200	2-4Q						2200	
Zephyr						2000	2-4Q	2000	1-4Q				4000	
Critical Runway Assessment Repair (CRATR)								1500	1-4Q	1500	1-4Q		3000	
Global Observer (GO)								1411	1-4Q	1720	1-4Q		3131	
Airborne Weapon Surveillance Systems (AWSS)										1500	1-4Q		1500	
Joint Force Protection Advanced Security System (JFPSS)										2800	1-4Q		2800	
Joint Multi-Mission Electro-Optic System (JMMS)								2000	1-4Q	2000	1-4Q		4000	
Event Management Framework (EMF)						500	3-4Q						500	
Regional Maritime Awareness Capability (RMAC)						500	3-4Q	500	1-4Q	550	1-4Q		1550	
Coalition Joint Spectrum						1000	2-4Q						1000	

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY	PE NUMBER AND TITLE										PROJECT
4 - Advanced Component Development and Prototypes (ACDP)	0604648D8Z - Joint Capability Technology Demonstration (JCTD)										P649
Management and Planning Tool (CJSMPT)											
Joint Coordination Real-time Engagement (JCRE)							405	1-4Q			
Rapid Airborne Reporting & Exploitation (RARE)				350	2-4Q						
Foliage Penetration Signature Aperature Radar (FOPEN)				150	2-4Q						
TEBO							1500	1-4Q			
Advanced ADS Scanning Antenna						1600	2-4Q				
Subtotal:				2866		13487		18577			

Remarks:

Only the ACTD/JCTDs that demonstrate the highest military utility will be considered for JCTD BA4 Transition funding. The primary focus of JCTD BA4 transition funding is to continue to sustain and develop residual assets of successfully demonstrated projects and develop/refine the documentation needed to ensure a successful transition of the developed products either into existing programs of record (POR) or to develop the package necessary to establish a new POR. In very select, compelling cases, this funding may be used to correct discrepancies in products, identified during the MUA, to help ensure a smooth transition to production or operations.

In FY 2008, there were several successful ACTD/JCTDs that recieved transition bridge funds. These projects were: Joint Force Projection (JFP); Active Denial System (ADS); Joint Modular Intermodal Distribution System (JMIDS); Foliage Penetration Signature Aperature Radar (FOPEN); and Rapid Airborne Reporting & Exploitation (RARE). All five of these projects are transitioning to programs of record in various ways, through integration to existing systems, products on the GSA schedule, or sustainment of residuals that fullfill the capbibility gap.

In FY 2009 the projects selected to recieve transition funding are: Hyperspectral Collection and Analysis (HyCAS) ACTD has been selected to receive transition funding to advance Airborne Hyperspectral capabilities. Sensors associated with the HyCAS ACTD have proven effective in operational demonstrations supporting Operation Enduring Freedom (OEF). Also the CI-HUMINT Advanced Modernization Program/Intelligence Operations (Champion); Joint Precision Air Drop (JPADS); Extended Space Sensors Architecture (ESSA); Large Data; Multi-Sensor Aerospace/Ground Joint ISR Interoperability Coalition (MAJIIC); Coalition Joint Spectrum Management and Planning Tool (CJSMPT); Comprehensive Maritime Awareness (CMA); Regional Maritime Awareness Capability (RMAC); Zephyr and Event Management Framework (EMF) have been selected recieve transition funding in FY 2009. All of these projects have successful demonstrations and all have strong transition paths to programs. Transition funding will ensure they bridge to programs of record.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604648D8Z - Joint Capability Technology Demonstration (JCTD)	PROJECT P649
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In FY 2010 probable candidates that have been identified for transition funding based on the high probability of a successful Military Utility Assessment (MUA) and demonstration of a critical capability. These programs have strong transition plans and targeted programs of record. These candidates are still under development and their transition status is subject to change. These candidates are: Mapping the Human Terrain (MAP-HT); Joint Enable Theater Access-Sea Ports of Debarkation (JETA-SPOD); Joint Coordination Real-time Engagement (JCRE); Joint Multi-Mission Electro-Optic System (JMMES); Global Observer; Joint Force Protection Advanced Security System (JFPASS); Airborne Weapon Surveillance Systems (AWSS); and Critical Runway Assessment Repair (CRATR).

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:					2866		13487		18577					

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604648D8Z - Joint Capability Technology Demonstration (JCTD)

PROJECT
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Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
Project Selection, Transition Planning (1) Procurement and Sustainment, (2) Assessment/Integration into PoR			■	■																												
				▲								▲																				
Project Selection, Transition Planning (3) Procurement and Sustainment, (4) Assessment/Integration into PoR							■	■																								
												▲																				

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY

4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE

0604648D8Z - Joint Capability Technology Demonstration (JCTD)

PROJECT

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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Project Selection	2Q - 3Q							
Transition Planning	4Q							
Procurement and Sustainment		1Q - 4Q						
Assessment/Integration into PoR			1Q					
Project Selection		2Q - 3Q						
Transition Planning		4Q						
Procurement and Sustainment			1Q - 4Q					
Assessment/Integration into PoR								

These JCTD Transition resources (RDTE,DW BA4) are aimed at carrying successful JCTD demonstration projects through the difficult transition stage ("S&T valley of death"). Many successful demonstrations require additional work to ensure a successful transition into a Program of Record (PoR). It may take additional time for a Service to integrate the capability into existing technology. To better support the rapid transition of joint, CoCom/coalition operational capabilities, the JCTD business model includes this JCTD Transition program element. This "transition arm" will enhance the agility by allowing successful projects time to find and integrate into a program of record. While not all ACTDs and JCTDs require transition funding, these resources provide a "transition bridge" to enable sustainment for innovative, "joint-unique" and CoCom/coalition capabilities until traditional programming and budgeting can provide a permanent solution.

Successful JCTD demonstrations go through a rigorous selection process for these sustainment and transition resources as they near the end of their development (BA3) stage. Once selected they are further developed and sustained as the accepting Service integrates the capability into acquisition and a PoR.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P670 Human, Social and Culture Behavior Modeling (HSCB) Advanced Development	0.989	5.958	7.006				

A. Mission Description and Budget Item Justification:

(U) This program focuses on maturing, hardening, and validating human, social, culture, and behavior modeling (HSCB) related software for integration into the architectures of "existing programs of record", or maturing software via open architectures to allow broad systems integration. The work provides a development-to-product transition pathway for socio-cultural models, tools, and visualization products. The work serves to certify that HSCB model-based technology can be transitioned into existing and developmental systems in coordination with Program Executive Offices/Program Managers, Joint users, and other identified transition customers. The program will port relevant data and tools from one system to other applications to provide forecasting capabilities for socio-cultural (human terrain) responses at the strategic, operational and tactical levels. It will mature and integrate technologies that provide training and mission rehearsal capabilities at the strategic to tactical level.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	0.991	5.991	7.132	
Current BES/President's Budget (FY 2010)	0.989	5.958	7.006	
Total Adjustments	-0.002	-0.033	-0.126	
Congressional Program Reductions				
Congressional Rescissions		-0.033		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other	-0.002		-0.126	

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010				
PE 0602670D8Z BA 2 HSCB Applied Research	6.074	7.643	9.446				
PE 0603670D8Z BA 3 HSCB Research & Engineering	2.960	9.330	11.480				

Comment:

D. Acquisition Strategy:

The program will produce software prototypes configured for use in programs such as the Distributed Common Ground Station (DCGS). The program will be executed via a Broad Agency Announcement (BAA) as well as via targeted request for proposals (RFP). RFPs and the BAA will be issued in the first quarter of FY09. Proposals will be solicited from all DoD organizations, other Federal Agencies and the commercial sector. Proposals will be competed using review panels.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development					PROJECT P670	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P670 Human, Social and Culture Behavior Modeling (HSCB) Advanced Development	0.989	5.958	7.006					

A. Mission Description and Budget Item Justification:
 (U) This program focuses on maturing, hardening, and validating human, social, culture, and behavior modeling (HSCB) related software for integration into the architectures of "existing programs of record", or maturing software via open architectures to allow broad systems integration. The work provides a development-to-product transition pathway for socio-cultural models, tools, and visualization products. The work serves to certify that HSCB model-based technology can be transitioned into existing and developmental systems in coordination with Program Executive Offices/Program Managers, Joint users, and other identified transition customers. The program will port relevant data and tools from one system to other applications to provide forecasting capabilities for socio-cultural (human terrain) responses at the strategic, operational and tactical levels. It will mature and integrate technologies that provide training and mission rehearsal capabilities at the strategic to tactical level.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Data collection tool	0.899	1.996	2.970

Transition first generation data collection tool and decision support tools.

FY 2008 Plan: Matured first generation data collection tool and software to support tactical level collection and dissemination of socio-cultural data. Military planners and intelligence units relied on data from front-line forces to augment their own data collection efforts. The information was often not stored, tagged or disseminated to higher level planners nor was it generally available or accessible to other forces. The toolset provided near real-time electronic, tagged data and actionable information for analysis and distribution.

Accomplishments:
 Completed technical feasibility study for the operational use of HSCB models.
 Initiated projects developing data collection tools to leverage ongoing investments, understand user needs, and build on previous successes.
 Leveraged ongoing classified efforts focused on automated data extraction.

FY 2009 Plan: Matured and delivered first generation data collection tool and software to support tactical level collection and dissemination of socio-cultural data. Established the TTPs, hardware, and software necessary to support the development and transition of technologies to DCGS-A and transition HSCB technologies to DCGS-A. Developed a standards-based data model along with associated cultural map and tabular data sets and assess application modeling activities utilizing relevant operational scenarios and realistic data to highlight technology gaps and transition possibilities.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 4

PE NUMBER AND TITLE
**0604670D8Z - Human, Social and Culture Behavior Modeling
(HSCB) Advanced Development**

PROJECT
P670

FY2010 Plan: Develop a second generation data collection and decision support tool to support tactical to operational collection and dissemination of socio-cultural data. Leverage lessons learned from Human Terrain Teams and others to focus the effort. Develop a tool that is specifically designed to support unit transitions (RIP/TOA) by storing data in a way that facilitates knowledge transfer.

Accomplishments/Planned Program Title:

<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
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Visualization Software

0.090	1.981	2.018
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Mature and deliver software that will visually and digitally represent cultural factors within existing C2 systems.

FY 2008 Plan: Identify the software modification/integration issues related to the maturation of software that supports the visualization of cultural information within existing operational-tactical level command and control (C2) and decision aiding systems. The output from ongoing visualization and human, social, culture, and behavior modeling (HSCB) projects needs risk reduction support for integration into existing C2 systems (e.g. Distributed Common Ground Station Army (DCGS-A), Intelligence analyst systems).

Accomplishments:

Initiated efforts devoted to further hybrid socio-cultural and geospatial visualization designed to transition to US Army and COCOM programs.

FY 2009 Plan: Mature and deliver software that supports the visualization of cultural information within existing operational-tactical level C2 and decision aiding systems. The output from ongoing visualization and human, social, culture, and behavior modeling (HSCB) projects need risk reduction support for integration into existing C2 systems (e.g. DCGS-A; Intelligence analyst systems). The work will deliver the capability for existing decision aids/C2 systems to visually or digitally depict cultural information to support manual or automated analysis. Demonstrations of alternative modeling approaches will be demonstrated via plugfest events.

FY2010 Plan: Develop a visualization capability targeted to user requirements and programs to support specific transitions. Include visualization capabilities that support the visualization of multi-media data, message diffusion across cultural groups, and message resonance. Develop a visualization capability that allows model outputs to be translated to human decision space and allows the rank ordering and understanding of DIME actions.

Accomplishments/Planned Program Title:

<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
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Modeling Capabilities

	1.981	2.018
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Mature and deliver socio-cultural modeling capabilities within existing DoD systems. Utilize HSCB technical testbed to conduct validation testing of HSCB model based applications.

FY2008 Plan: Deferred to FY2009 due to funding constraints.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development	PROJECT P670
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FY2009 Plan: Built upon operation experiments with USPACOM and USEUCOM, developed a prototype capability designed to support COCOM determinations of regional stability, as well as prototype capability focused on operational planning and intelligence analysis. Developed COMPOEX framework capability and assess transition path to DCGS-A of tested models. Initiated development of a target audience analysis and influenced analysis capability to support USSOCOM and DoD strategic communication requirements and demonstrate prototype capability via plugfest events.

FY2010 Plan: Develop a modeling capability targeted to influence and PSYOP operations to support specific transitions including capability focused on operational planning and intelligence analysis. Include capabilities that support target audience analysis, message diffusion and message resonance and insert into USSOCOM testbed for transition. Develop a modeling and analysis capability that allows model outputs to be translated to human decision space and allows the rank ordering and understanding of human actions. Develop a modeling capability that supports DCGS-specific socio-cultural analysis and integrate the capability into the DCGS-A SIL.

C. Other Program Funding Summary:	FY 2008	FY 2009	FY 2010					
R&D 0602670D8Z HSCB Applied Research BA 2	6.074	7.643	9.446					
R&D 0603670D8Z HSCB Advanced Development BA 3	2.960	9.330	11.480					

Comment:

D. Acquisition Strategy:

The program will produce software prototypes configured for use in programs such as the Distributed Common Ground Station (DCGS). The program will be executed by Broad Agency Announcement (BAA) and a targeted request for proposals (RFP) process. RFPs and the BAA will be issued in the first quarter of FY09. Proposals will be solicited from all DoD organizations, other Federal Agencies and the commercial sector. Proposals will be competed using review panels.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development							P670				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
System Design	MIPR	NAVSEA						7006	1-4Q					
Subtotal:								7006						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Program management	TBD	TBD		989	1-4Q	5958								
Subtotal:				989		5958								
Project Total Cost:				989		5958		7006						

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604670D8Z - Human, Social and Culture Behavior Modeling (HSCB) Advanced Development	PROJECT P670
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
FY 2008 Projects Identified	2Q							
Data Tool Project Begins	2Q - 4Q							
Architecture Software Developed	3Q - 4Q							
SOCPAC Software Project Begins	2Q - 4Q							
Software Tool Developed	4Q	1Q - 2Q						
SOCPAC Tool transitioned		2Q						
FY 09 Projects Identified		1Q						
FY 09 Projects Funded		2Q						
FY 09 Projects Developed and Transitioned		2Q - 4Q	1Q - 4Q					
Spiral 1 Delivery			4Q					
FY 09, and 10 Projects Developed and Transitioned			4Q					
Spiral 2 Delivery								
FY 11 and 12 Projects Developed and Transitioned								
Spiral 3 delivery								

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604787D8Z - Joint Systems Integration Command					
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P787 Joint Systems Integration Command	18.729	19.535	19.744				

A. Mission Description and Budget Item Justification:

The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of U.S. Joint Forces Command (USJFCOM) RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007.

JSIC supports Joint Requirements Oversight Council Memoranda (JROCM) by conducting system interoperability assessments, by providing warfighter utility assessments addressing near-term joint capability shortfalls, and by developing solutions to improve integration of Service and Agency systems. JSIC is the U.S. Joint Forces Command (USJFCOM) and Chairman, Joint Chiefs of Staff (CJCS) capability for warfighter exploration, capability integration, and evaluation of Command and Control (C2) and Command, Control, Computer, Communication, Intelligence, Surveillance & Reconnaissance (C4ISR) capabilities. JSIC provides Combatant Commands, at the joint force headquarters level, with a laboratory and assessment environment for the warfighter and technologist. This environment provides for assessment of current and near-term joint operational capabilities. JSIC's Persistent Command and Control (C2) Environment accurately replicates an operational C2 environment. With this capability, JSIC assesses operational, system of systems, technical, software, and procedural interoperability of new systems and programs to confirm readiness for initial acquisition and fielding of evolutionary improvements.

JSIC serves as the technical analysis and operational assessment activity in support of the Joint Staff capability-driven requirements process, the Joint Capabilities Integration and Development System (JCIDS). Through JSIC's analysis and assessment, systems are evaluated for "value-added" prior to employment in joint environments typical of deployed theaters of operation. JSIC also serves as a joint interoperability compliance activity for the milestone decision authorities/program managers, including the Command and Control Capability Integration Board (C2CIB) and associated, Functional Command and Control Board (FCB). The C2 Capability Portfolio Manager (C2 CPM) has tasked JSIC to provide analysis and assessment of C2 portfolio systems.

By establishing ground truth for interoperability and suggesting remedies for demonstrated shortfalls, JSIC is a forcing function for interoperable joint solutions and a means to foster rapid, near-term insertion of C4ISR technology by promoting the ability to meet the DoD direction for spiral development and evolutionary acquisition. JSIC's mission assignment is to provide for the fielding of warfighter C2 systems through rapid systems integration, technical assessment, and operational evaluation using laboratory environments and field venues. In the world of C2 and ISR interoperability, performance in the field is the bottom line. In terms of investment, JSIC is the "ounce of prevention" that precludes a "pound" of mission failure and loss of life due to interoperability failures in actual military operations.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604787D8Z - Joint Systems Integration Command
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	19.207	19.643	20.098	
Current BES/President's Budget (FY 2010)	18.729	19.535	19.744	
Total Adjustments	-0.478	-0.108	-0.354	
Congressional Program Reductions				
Congressional Rescissions		-0.108		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.441			
Other	-0.037		-0.354	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

JSIC supports interoperability of systems selected for acquisition, integration and fielding. JSIC is intended to be a forcing function to discover and provide interoperable joint solutions as a means to foster rapid, near-term insertion of C2 technology by promoting the ability to meet the DoD direction for spiral development and evolutionary acquisition. Services and Defense Agencies are responsible for conducting acquisition activities in Programs of Record (POR).

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	JC2	Number of FY 2007 Assessments/Interoperability Demonstrations/Capability Integrations	5% increase in assessments, integrations & demos	Achieved 27 of planned 25 assessments/demos	Number of assessments, integrations & demos	Completed 27 assessments/demos
09	JC2	Number of FY 2008 Assessments/Interoperability Demonstrations/Capability Integrations	5% increase in assessments, integrations & demos		Number of assessments, integrations & demo	

Comment:

Performance of Joint Systems Integration Command is measured by successful delivery of JSIC products to customers by required delivery dates.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604787D8Z - Joint Systems Integration Command					PROJECT P787	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P787 Joint Systems Integration Command	18.729	19.535	19.744					

A. Mission Description and Budget Item Justification:

The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of U.S. Joint Forces Command (USJFCOM) RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007. Funding to support the Joint Systems Integration Command (JSIC) Program in FY 2006 and prior were reflected in the Navy's RDT&E Program under PE 0604787N.

JSIC conducts Command and Control (C2) system interoperability assessments, providing warfighter utility assessments that address near-term joint capability shortfalls, and developing solutions to improve integration of Service and Agency C2 systems. JSIC is the Defense system engineering capability for warfighter focused investigation, evaluation, and of Command and Control (C2) and Command, Control, Computer, Communication, Intelligence, Surveillance & Reconnaissance (C4ISR) capabilities. JSIC provides Combatant Commands, at the joint force headquarters level, with a laboratory and assessment environment for the warfighter and technologist. This environment provides assessment of current and near-term joint operational capabilities. JSIC's Persistent Command and Control (C2) Environment accurately replicates an operational C2 environment. With this capability, JSIC assesses operational, system of systems, technical, software, and procedural interoperability of new systems and programs to confirm readiness for initial acquisition and fielding of evolutionary improvements.

JSIC serves as the technical analysis and operational assessment activity in support of the Joint Staff capability-driven requirements process, the Joint Capabilities Integration and Development System (JCIDS). Through JSIC's analysis and assessment, systems are evaluated for "value-added" prior to employment in joint environments typical of deployed theaters of operation. JSIC can also serve as a joint interoperability compliance activity for acquisition milestone decision authorities/program managers. The Command and Control Capability Integration Board (C2CIB) and associated C2 Capability Portfolio Manager (C2 CPM) tasked JSIC to provide analyses and assessment of C2 portfolio systems.

By establishing ground truth for interoperability and suggesting remedies for demonstrated shortfalls, JSIC is a forcing function for interoperable joint solutions and a means to foster rapid, near-term insertion of C4ISR technology by promoting the ability to meet the DoD direction for spiral development and evolutionary acquisition. JSIC's mission assignment is to provide for the fielding of warfighter C2 systems through rapid systems integration, technical assessment, and operational evaluation using laboratory environments and field venues. In the world of C2 and ISR interoperability, performance in the field is the bottom line.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Interoperability Technology Demonstration Center (ITDC) and Interoperability Assessments (IA)	11.022	11.835	11.844	

Primary outcome (objective) for this effort is seamless interoperability across DoD systems programmed for introduction to the warfighter. The Joint System Integration Command's (JSIC) ITDC supports the interoperability assessment of systems in five categories: operational, system of systems, technical, software, and procedural. These assessments provide supporting justification for continued development of a program within the acquisition system.

FY 2008 Accomplishments

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PROJECT

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Conducted interoperability assessments and provided evaluation support for the Capability Portfolio Managers (CPMs). Provided assessment and process support to the Net Enabled Command Capability (NECC) Joint Systems Team (JST). Conducted interoperability demonstrations of Command and Control (C2) developmental systems/applications.

CPM POM 10 Focus Team Support - Provided system-level analytical services. Conducted technical and operational analysis in conjunction with the focus teams.

CPM Mapping - Supported portfolio mapping by helping define the content of the C2 portfolio.

CPM C2 Registry - Designed to help CPMs understand the technical and operational details of the portfolio content, including functionality, connectivity, known interoperability issues, programmatics, and relevant policy and standards.

C2Pedia - The user interface to the C2 Registry. The tool was designed to have the look and feel of Wikipedia, but represents authoritative C2 data source information.

CPM C2 Analysis - Conducted a portfolio reconciliation in conjunction with Program Analysis and Evaluation (PA&E).

Guidance for the Development of the Force (GDF) directed C2 Capability Mix Study Support - JSIC supported USJFCOM in a study that recommended the optimum mix of command and control capabilities needed for strategic through tactical level military operations in the 2014-2016 time frame.

Net Enabled Command Capability (NECC) Process Support - JSIC supported Joint interoperability and facilitated ongoing efforts between the acquisition, testing and operational communities. JSIC provided infrastructure, architectural, and assessment support to the Federated Development and Certification Environment (FDCE).

Joint Systems Baseline Assessment 2008 (JSBA 08) - JSIC assessed:

Selected C2 targeting applications to further interoperability of joint and service targeting tools in the joint targeting process.

ISR Distributed Common Ground Station/Surface System (DCGS) systems and services for shared situational awareness with C2 systems in a SBE within the Distributed Development and Test Enterprise.

Combatant Commander Collection Management capabilities and service/joint systems and databases in the execution of targeting mission.

Cross Domain Services, specifically the degree to which they enable interoperability between the Global Command and Control Family of Systems (GCCS-FoS) and selected network domains.

Implementations of standards in a Service Oriented Architecture (SOA).

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Guidance for Development of the Force (GDF) - Mobile and Deployable C2 Capabilities - JSIC conducted a study to provide a baseline for defining investment plans for aligning resources and a capability mix to address gaps, reduce excess, and achieve efficiencies for mobile and deployable C2 capabilities.

Command Post of the Future (CPoF) Technical Evaluation - JSIC conducted a technical evaluation of Joint requirements for CPoF, Georgia version, software build II +/-09-11 and Track Management Service (TMS) interface with Global Command and Control System-Joint (GCCS-J) and Theater Battle Management Core Systems (TBMCS1.1.3) for U.S. Army, Ft Monmouth, Program Executive Office Command Control Communications Tactical (PEO C3T) Tactical Battle Command (TBC).

Automated Metadata Population Service (AMPS) - JSIC provided technical and engineering support and lab space with four servers and a secure tunnel across the Internet where developers could install and test applications with reach-back capabilities.

FY 2009 Planned Output

JSIC support to the C2 Capability Portfolio Management (C2 CPM) and Processes.

Command and Control Analysis Program Support - JSIC is providing C2 CPM POM 12 Focus Area (FA) team support and support the Joint Capability Developer (JCD) in providing analysis for inclusion in the C2 Implementation Plan.

Command and Control Capability Mapping - The C2 CPM Systems Mapping Project is a critical element of the C2 registry that provides C2 systems and system function technical data. The mapping data provides linkages between C2 systems, the joint common system functions performed, Joint Capability Areas (JCA), and Universal Joint Task Lists (UJTL).

Command and Control Optimum Capability Mix Study Technical Analysis and Support - JSIC is using Capability Delivery Increments (CDIs) and service migration plans to provide snapshots of system support, discern system functions associated with CDIs, and estimate system support.

Command and Control Registry (C2R) / C2 Pedia Version 2 Development and Mission Engineering -The C2R is being enhanced with a more robust database and intuitive application software. Enhancement will add a text processing tool that associates search results with the jargon and formal lexicons of particular subject areas so that the relevance and value of the data will be immediately discernible.

Net-Enabled Command Capability (NECC) Focused Support Analysis - JSIC provides Capability Provisioning Document (CPD), Systems Engineering (SE), Joint Systems Team (JST) and Capability Provisioning Event (CPE) activity in support of USJFCOM Joint Combat Capability Developer (JCCD) requirements.

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Net-Centric Enterprise Services (NCES) Program Support - NCES is providing the next generation of COTS based enterprise network services, Enterprise Portal, Collaboration, Content Discovery & Delivery (CD&D) and Service Oriented Architecture Foundation (SOAF). JITC as the lead Operational Test Agency is responsible for performance of Risk Reduction and Operational Tests of the NCES services. JSIC will support USJFCOM J6 who is the Warfighter User Representative as a potential test site and test agency in the NCES Milestone C Test and Evaluation Master Plan (TEMP).

Joint Systems Baseline Assessment (JSBA) 2009 - JSBA 09 is assessing the ability of the Joint Task Force (JTF) Commander to discover, access, coordinate, and operationally employ information from the Battlespace Awareness (BA) capability portfolio through the interoperability assessment of the fielded Global Command and Control System (GCCS) and developing Net Enabled Command Capability (NECC) and also between those C2 systems with the Distributed Common Ground System (DCGS) programs.

Irregular Warfare Center /Joint Urban Ops Office Urban C3 Systems Assessment - JSIC will conduct an assessment of tactical broadband wireless technologies against Warfighter requirements to identify "best of breed." The overall objectives of the JUOO assessment are to identify the ability of current technologies to provide user friendly, reliable communications providing enhanced C2 and situation awareness capabilities to warfighters operating in the first tactical mile

FY 2010 Plan

JSIC will continue the efforts planned for FY2009. Interoperability demonstrations will be conducted to solve warfighting problems including coalition challenges.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Technical Assessments and Integration (TA&I)	2.400	2.800	2.900

Primary Outcome (objective) for this effort is to provide near-term technical solutions for integration, assessment and delivery of operational capabilities that address near-term operational and tactical requirements. TA&I uses organic laboratory resources, equipment, and technical personnel to integrate emerging technologies. JSIC also provides Doctrine, Organizational, Training, Materiel, Leadership, Personnel, Facilities (DOTMLPF) recommendations on fielding strategies for USJFCOM and Joint Staff endorsement.

The primary outputs and efficiencies realized are: 1) Reduced costs and delivery time to the warfighter through application of commercial and emerging technology to solve near-term Combatant Commander (COCOM) Command and Control (C2) capability gaps; 2) Increased cost avoidance through transition of successful commercial technology integration in solving COCOM capability shortfalls to applicable Service programs of record; 3) Decreased reliance on post delivery interoperability corrections; 4) Improved assessment-based recommendations of technology solutions that address the military utility of proposed solutions and identify relevant Service programs, doctrinal impacts, training implications, and personnel requirements; and 5) Improved life-cycle support for capabilities deployed to forces.

FY 2008 Accomplishments

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Secure Multicast Video Demonstration (SMVD) - JSIC researched and assessed commercial off-the-shelf technology that enabled the use of video products more efficiently over existing architectures. JSIC determined the SMVD capability provides a more efficient means to disseminate streaming video to critical users. The secure multicast features provides information protection, while delivering a single multicast stream to many users. This reduced the bandwidth required to send video feeds to a large number of subscribers and supports the use of streaming video over tactical links. Additionally JSIC evaluated the feasibility of including a software based High Assurance Internet Protocol Encryptor (HAPE) Suite B capability to provide security.

CRANITE Wireless Wall Technical Assessment - JSIC conducted a technical assessment of the Wireless Wall software-only encryption application for securing 802.11 wireless networks regardless of which vendor's hardware devices were used. The results of this assessment provided data that allowed Combatant Commanders to secure their existing wireless networks without any additional hardware.

Tactical Service Provider (TSP) Joint Concept Technology Demonstration (JCTD) - Individual dismantled warfighters lack ability to communicate over broadband communication links that promote mobility and collaboration. JSIC supported DISA by implementing a hybrid communications architecture that uses emerging standards-based, commercial off the shelf satellite communications and wireless technology to extend global, wideband communications and services to the tactical edge.

Tactical Cellular Network (TactiCell) - JSIC and JSOC partnered to integrate an Evolution-Data Optimized (EV-DO) Rev A cellular base station that uses Code Division Multiple Access (CDMA) 2000 standards (capable of 1.8 Mbps transmit and 3.1 Mbps receive) with a Secure Multicast Distribution Capability (SMVD). Additionally a technical assessment was conducted to evaluate voice and video exchanges.

USJFCOM Commander's Executive Command and Control (EC2) Kit Upgrade - JSIC upgraded the four deployable EC2 communication kits to an EC2 Block 3 configuration. The Block 3 configuration provides a more secure Advanced Encryption Standard (AES) Virtual Private Network (VPN) tunnel to reachback and access the USJFCOM unclassified network.

Wireless for the Warfighter (W4W) Transition - JSIC transitioned to Joint Task Force - Civil Support an extended wideband wireless local area network and wireless line and non-line of sight trunking capability to support deployable communications between a headquarters and subordinate units. This capability will also support rapid connectivity between dispersed elements of a headquarters staff.

FY 2009 Planned Output

Tactical Service Provider (TSP) Joint Concept Technology Demonstration (JCTD) Continuation - JSIC is assisting the TSP JCTD team to integrate 802.16(e) wireless system into the two-way satellite Global Broadcast System (GBS) and conduct a multi-site Limited User Assessment (LUA) to demonstrate Headquarters to end user connectivity.

Tactical Cellular Network (TactiCell) - JSIC is completing its assessment of the Evolution-Data Optimized (EV-DO) Rev-A cellular base station and integrate emerging Rev-B systems into the architecture. EV-DO Rev B is expected to provide 27 Mbps transmit and 73 Mbps receive capability.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604787D8Z - Joint Systems Integration Command	PROJECT P787
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Joint Task Force - Civil Support (JTF-CS) WAVE - WAVE provides secure, real-time group communications over an IP network and can enable interoperable communications over any audio source including two-way radios, telephones, cellular phones, PCs, IP phones, and PDAs. JSIC is demonstrating and assessing WAVE followed by assistance to integrate the capability into the JTF-CS architecture.

Deployable Executive Communications (DEC) - JSIC is delivering an approved and certified DEC kit that will offer secure, modern, lightweight and versatile communications capability including Video Teleconferencing (VTC), Voice-over-Internet-Protocol (VoIP), Voice-over-Secure-Internet-Protocol (VoSIP), and access to the SIPRNet, NIPRNet, and other networks.

One Box - One Wire (OB1) JCTD Support - The JCTD uses several existing technologies to remove impediments to information flow, while reducing C2 system physical footprint, logistic and support requirements, collapsing multiple security domains into one while providing robust information security and integrity.

FY 2010 Planned Output

JSIC will continue the efforts planned for FY2009. JSIC will support continued development of criteria to measure and assess systems/applications within the Command and Control (C2) portfolio in terms of joint compliance, operational interoperability, and warfighter utility. JSIC's efforts will be focused on solving warfighting problems including coalition challenges. JSIC will investigate potential impacts of technology advances in wireless devices, mesh and ad-hoc networking, satellite modem technology, and small lightweight secure digital capabilities on warfighter C2 capabilities and match emerging critical warfighter requirements with current technologies to identify rapid near-term technology solutions in support of the Combatant Commanders.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Capability Assessment	2.600	1.400	1.500

Primary Outcome (objective) for this effort is to provide objective based assessment of Doctrine, Organizational, Training, Materiel, Leadership, Personnel, Facilities (DOTMLPF) solution sets in support of the Joint Task Force Commander. JSIC will analyze Combatant Commander (COCOM) near-term requirements using DOTMLPF criteria. JSIC will identify current, emerging, or mature technologies to address materiel requirements. Comprehensive assessments covering joint maturity, warfighter utility, and operational effectiveness will be conducted on legacy and transformational projects. JSIC also provides DOTMLPF recommendations on fielding strategies for USJFCOM and Joint Staff endorsement.

The primary outputs and efficiencies realized are: 1) Increased number of recommended improvements that enhance the capability of Joint Task Force Headquarters (JTF HQ); 2) Increased number of verifiable capability solutions recommended for fielding to the Combatant Commander sponsor based on quantified capability improvements; 3) Increased empirical data to support benefit-cost ratio improvements of JTF HQ investment decisions to ensure JTF HQs command and control (C2) capabilities are interoperable from technical and operational standpoints; 4) Increased number of assessments conducted that identify current force JTF HQs C2 systems that are interoperable and supported, that inform and recommend solutions to integrate, modify, or retire current force systems; 5) Increased number of assessment based recommendations of technology solutions that address the military utility of proposed and existing Service solutions; and 6) Increased number of solutions deployed with recognized DOTMLPF impacts.

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Program Management offices benefit because the JSIC program provides a venue for Military Utility Assessments (MUAs) of technologies before committing to implementation. The potential savings associated with finding existing commercial technologies to provide gap filler solutions, and avoid the fielding of systems that are not interoperable or that fail to meet warfighter needs, are difficult to quantify. Potentially life-threatening shortfalls can be identified and fixed in advance of fielding. Services benefit directly by reduced Program Manager costs and by fielding systems that are interoperable and meet warfighter needs.

FY 2008 Accomplishments

Command Post of the Future (CPoF) and Adobe Connect Pro 6 Capability Assessment - JSIC conducted an analysis of Adobe Connect Pro 6 and CPoF to assess interoperability and evaluate information exchange capabilities between computers equipped with only the CPoF software, computers equipped with only the Adobe Connect software, and computers equipped with both software applications (shared client). The CPoF and Adobe Connect applications are interoperable with the exception of Voice over IP (VoIP) and chat tools. Identified installation of Ventrilo software on those workstations equipped with only the Adobe Connect software as a workaround. Performance of the screen sharing feature degrades significantly as bandwidth decreases and latency increases.

Global Command Support System Engineering v7.0 (GCSS-EN 7.0) Military Utility Assessment (MUA) - JSIC conducted a military utility assessment of GCSS-EN 7.0 to identify any issues early in the development cycle, prior to planned deployment. GCSS-EN is a 3-year major redesign effort of an existing program - Joint Engineer Planning and Execution System (JEPES).

USCENTCOM Best of Breed (BoB), Tactical Ground Reporting Network (TiGRNet), Combined Information Data Network Exchange (CIDNE), and Digital Topographic Support System (DTSS) Capability Assessment - JSIC conducted a capability assessment and a comparative analysis of the selected systems identified by USCENTCOM J6/J3 and the C2 Capability Portfolio Manager (CPM). The analysis focused on systems that provide redundant joint C2 functions in support of CENTCOM missions to determine which system or combination of systems provide the best C2 capability and best value from the C2 CPM perspective.

Deployable Joint Command and Control Post Implementation Review (DJC2 PIR) - JSIC assessed the DJC2 program and collected warfighter feedback from the implementation of DJC2 in an operational environment to evaluate how the DJC2 program met expectations and satisfied the DJC2 measures of effectiveness (MOEs).

Joint Logistics Global Combat Support System Quick Reaction Test Risk Reduction Event (JLGCSS QRT RRE) - JSIC conducted a military utility assessment to validate the GCSS v6.1 capabilities/Force Reception Map to determine GCSS v6.1 capability to support Force Reception processes and workflows by evaluating the effectiveness of the Quick Reference Guide.

FY 2009 Planned Output

JSIC projects are nominated to meet Combatant Commander's (COCOM) and Joint Task Force (JTF) transformation requirements. As the portfolio manager concept matures, assessments are expanding to cover concept of operations and mission effectiveness of selected systems and applications.

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Coalition Warfare Interoperability Demonstration (CWID) 2009 Selected Trial Assessments - As directed, JSIC is supporting/augmenting the assessment of selected CWID Trial Demonstrations by providing methodology recommendations and analysts for C4ISR technologies that show potential for near-term transition, as determined by the CWID Senior Management Group.

Net-Centric Security Pilot Assessment and Support - JSIC is the central hosting site and provides assessment support to the various program initiatives to help document commonalities and differences between security models, capture lessons learned, and formulate recommendations for interoperability and a reference security model.

Command and Control (C2) Data Pilot Phase 4 - JSIC is supporting this follow-on effort to demonstrate services operated over a service oriented architecture foundation (SOAF). These efforts are being developed within the Services, NGA and DISA to bring together disparate C2 databases.

Virtual Integrated Support for the Information Operations Environment (VISION) Proof of Concept Limited Utility Assessment (LUA) - VISION is the future Joint environment for advancing effects-based (now adaptive) integrative analysis, planning and assessment through collaboration at the COCOM and JTF component-level to include integrative analysis from communities of interest. VISION will allow joint force commanders and their components to conduct adaptable, scalable information operations analysis, planning, targeting and assessment with accredited applications and reach-back. In concept VISION is to provide linkages between established joint IO planning, fires and targeting operations.

FY 2010 Planned Output

Joint Systems Integration Command (JSIC) is continuing 2009 efforts to provide criteria in which to measure and assess systems/applications within the C2 portfolio in terms of joint compliance, operational interoperability, and warfighter utility where necessary to support customer needs. Capability assessments will be conducted to address warfighting problems including coalition challenges.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Persistent Command and Control Environment / Federated Joint C2 Laboratories (FJC2L)	2.707	3.500	3.500

JSIC supports the Persistent Command and Control Environment by aggressively engaging the Services in a collaborative effort to bring joint solutions through JSIC's capability integration, interoperability demonstrations and capability assessments process. JSIC works in collaboration and formal coordination with the Joint Staff, Combatant Commanders (COCOMs), Services, defense agencies, departments and agencies outside of DoD, as well as allies and other coalition partners to align efforts, create a culture of innovation, and foster the development of new joint operational concepts, along with measures of merit, to serve as the basis for exploring future joint capabilities and operations through joint and coalition experimentation and assessment.

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The Persistent Command and Control (C2) Environment supports the C2 Capability Portfolio Management (C2 CPM) vision and provides the:

Bridge between current force environment and net-centric developmental activity

Ability for continuous assessment using always available infrastructure

FY 2008 Accomplishments

DoD Interoperability Communications Exercise (DICE) and Joint User Interoperability Communication Exercise (JUICE) Support - JSIC extended the Persistent Command and Control Environment to the Joint Interoperability Test Command (JITC) and provided engineering and systems support to DICE 2008 and JUICE participants in the JITC certification process.

Multilateral Interoperability Programme (MIP) Integrated Gateway Box (IGB) Test - JSIC provided engineering and technical support, equipment and laboratory space. The IGB allows the exchange of MIP C2 data while providing a measure of security for tailored cross-domain information exchange thus permitting multilateral sharing of ground data among disparate national systems.

Quadrilateral Logistic Forum (QLF) Logistics Architecture Work Group (LAWG) Reports and Return (R2) Test Proposal - In response to JS J4 request to support LAWG R2 interoperability requirements, JSIC provided engineering and technical support and laboratory space to demonstrate the ability of the R2 logistic report to support International Security Assistance Force (ISAF).

Combined Joint Task Force (CJTF) Horn of Africa (HOA) Mission Rehearsal Exercise (MRX) 08-1 - JSIC provided laboratory facilities, engineering, and technical support to USJFCOM's CJTF HOA MRX.

USAF Global Cyberspace Integration Center (GCIC) Support for Advanced Concept Event (ACE) - The GCIC requested JSIC support for the Air Force Research Laboratory (AFRL) Directed Energy Directorate's annual Advanced Concept Event. JSIC provided Defense Research and Engineering Network (DREN) connectivity and required command and control systems as well as engineering and technical support.

National Level Exercise (NLE 2-08) - JSIC provided the persistent JC2 environment including engineering and technical support, workstations for 60 participants. Internet access for 60 position, 30 telephones, copier, printers, FAX, shredder, and video broadcast support.

IBM Services Oriented Architecture (SOA) Cooperative Research and Development Agreement (CRADA) - JSIC is providing the persistent JC2 Environment to include lab space for approximately 3 server racks, space for 7 personnel (4 IBM, 3 J6), and general workstation furnishings (for J6 Personnel). Network resources: NIPRNet, SIPRNet, SDREN, DREN, commercial internet, and data storage space. System administrative, technical and engineering support for equipment power-cycling, backups and physical inspections.

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Joint Mission Environment Test Capability (JMETC) / InterTEC Spiral 2 - InterTEC employed the Test and Training Enabling Architecture (TENA) as its principle Technical Architecture for the interoperable exchange of test data among the integrated suite of InterTEC applications. InterTEC provided the tools to construct, manage, control, instrument, stimulate, extract data, visualize and analyze a net-centric test environment that blends constructive simulations, hardware-in-the-loop laboratories, and live systems operating on open-air ranges. JSIC provided laboratory facilities, engineering and technical support.

Joint Battlespace Dynamic Deconfliction (JBD2) Test Event - JSIC provided analysts, technical and engineering support to maintain SDREN connectivity, GCCS-J v.4.x and Joint node for a distributed test capability to exchange COP data with other sites (Eglin 46th TS Lab, U.S. Marines, Redstone Arsenal, SPAWAR Charleston).

DISA Global Combat Support System - Joint (GCCS-J) v 6.1 Training for Operational Test and Operational Test Support - Provided technical support to DISA GCSS Program Management Office which contracted with the Joint Deployment Training Center (JDTC) to receive functional training for COCOM and Service personnel supporting the work up for a Joint Staff Phase 6, v 6.1 operational test and evaluation of GCCS-J. JDTC does not have the capability to host and provide instruction to a large training audience, JSIC provided facility, engineering, and technical support for both training and execution of the operational test of GCCS v6.1.

FY 2009 Planned Output

Continue to engage the Services and Communities of Interest (COI) in a collaborative effort to bring joint solutions through integration, operational interoperability and capability assessments. Leveraging the FJC2L, JSIC will focus on identifying emerging technologies and C2 interoperability solutions supporting the following: NATO Consultation, Command and Control Agency (NC3A) and Allied Commander Transformation (ACT), Net-Enabled Command Capability (NECC), Capability Portfolio Managers (CPM), and C2 Logistics and Joint Deployment Process.

Coalition Warrior Interoperability Demonstration (CWID) Support -CWID is the CJCS J6 annual event enabling the Combatant Commanders and the international community to investigate technology solutions that focus on relevant and timely objectives for enhancing coalition interoperability and exploring new partnerships. JSIC will provide the environment, technical support, and connectivity for CWID 09.

DoD Interoperability Communications Exercise (DICE) 2009 and Joint User Interoperability Communication Exercise (JUICE) Support - DICE is the only DoD exercise whose primary purpose is to certify systems for joint interoperability. JSIC is providing a robust and operationally realistic Joint Task Force (JTF) architecture that provides the necessary opportunities to vigorously exercise and evaluate non-secure and secure command and control voice, data and video services and interfaces, which are critical to split-base operations.

Joint Mission Environment Test Capability (JMETC) Interoperability Test and Evaluation Capability (InterTEC) Support - JMETC is standardizing DoD interoperability testing procedures as well as the tools used to measure interoperability. InterTec, a toolset, provides the capability to construct, control, instrument, capture data from, and analyze an operationally relevant interoperability test.

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Empire Challenge 2009 (EC09) Infrastructure Support - EC09 uses the Distributed Common Ground Station (DCGS) Distributed Development and Test Environment (DDTE). USJFCOM has assumed EC 09 lead and JSIC will support all EC09 events.

NATO International Security Assistance Force (ISAF) Command, Control, Communications, Computers and Intelligence (C4I) Experimental Capability (ICECAP) F

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0604787D8Z - Joint Systems Integration Command							P787				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Dev Support Equipment	MIPR	General Services Administration	3374	3768	1-4Q	3868	1-4Q	3868	1-4Q					
Systems Engineering	C-CPFF	Old Dominion	300	332	1-4Q	432	1-4Q	400	1-4Q					
General/Contractor Engineering Support	C-CPFF	General Dynamics	11683	10544	1-4Q	11014	1-4Q	11546	1-4Q					
Systems Engineering	C-CPFF	South Carolina Research	1648	890	1-4Q	890	1-4Q	980	1-4Q					
Gov't Engineering Support	Various DoD	Various	3289	3193	1-4Q	3193	1-4Q	2600	1-4Q					
Travel	Various DoD	Various	341	2	1-4Q	138	1-4Q	350	1Q					
Subtotal:			20635	18729		19535		19744						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			20635	18729		19535		19744						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
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Event Name	FY 08				FY 09				FY 10																		
	1	2	3	4	1	2	3	4	1	2	3	4															
Project Selection, Project Planning																											
Procurement																											
Testing/Integration/Assessment																											
Report/Findings																											

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 4 - Advanced Component Development and Prototypes (ACDP)	PE NUMBER AND TITLE 0604787D8Z - Joint Systems Integration Command	PROJECT P787
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Project Selection		1Q - 4Q	1Q - 4Q					
Project Planning		1Q - 4Q	1Q - 4Q					
Procurement		1Q - 4Q	1Q - 4Q					
Testing/Integration/Assessment		1Q - 4Q	1Q - 4Q					
Report/Findings		1Q - 4Q	1Q - 4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604828D8Z - Joint Fires Integration & Interoperability						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P857 Joint Fires Integration & Interoperability	15.969	16.813	16.972					

A. Mission Description and Budget Item Justification:

The Joint Fires Integration & Interoperability Team (JFIIT) funded in this program is a relatively small cell of recognized Joint fires experts adding value to much larger Service investments in force elements designed to produce kinetic and non kinetic effects. Services, Joint, and Combatant Commanders and their Staffs actively seek JFIIT advice and assistance to improve the execution of combat fires applied in complex coalition and joint environments.

The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of US Joint Forces Command (USJFCOM) RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007. Funding to support the JFIIT Program prior to FY 2007 was reflected in the Navy's RDT&E Program under PE 0603857N. The new funding alignment brings the JFIIT Program into oversight by the Undersecretary of Defense, Acquisition, Technology and Logistics (USD AT&L) Director Defense Research & Engineering (DDR&E).

Joint Requirements Oversight Council Memo (JROCM) 183-4, dated 8 Oct 04, directed U.S. Joint Forces Command (USJFCOM) to establish a Joint Fires Support Organization. JROCM 241-05, dated 3 Nov 05, validated the JFIIT mission. USJFCOM Directive Number 5170.2 dated 30 Nov 07, Charter for JFIIT, assigns JFIIT responsibility to improve Joint Fires.

The JFIIT mission is to improve the integration, interoperability, and operational effectiveness of Joint fires, at the tactical level. JFIIT takes a holistic approach to improving Joint fires by providing solutions that produce effective target acquisition, command and control, and interoperable firing systems, thereby reducing fratricide and collateral damage. This results in not only near-term tactical identification of issues and solutions, but also informs and provides a foundation for short and long-term operational and tactical capabilities.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604828D8Z - Joint Fires Integration & Interoperability
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	16.452	16.906	17.277	
Current BES/President's Budget (FY 2010)	15.969	16.813	16.972	
Total Adjustments	-0.483	-0.093	-0.305	
Congressional Program Reductions				
Congressional Rescissions		-0.093		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.451			
Other	-0.032		-0.305	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
09						

Comment:

JFIIT delivers Joint solutions for serviced-developed forces deployed to Combatant Commands. The deliverables may include discrete improvements to training processes, doctrine, Tactics, Techniques & Procedures (TTPs), and/or technical system performance specifications and standards, validated Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) Joint fires recommendations, timely delivery of quality feedback to exercise participants, or improvements to Joint context of a training venue. The Office of Secretary of Defense (OSD) and United States Joint Forces Command (USJFCOM) work in concert to approve the annual agenda of work and validate results.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604828D8Z - Joint Fires Integration & Interoperability				PROJECT P857	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P857 Joint Fires Integration & Interoperability	15.969	16.813	16.972				

A. Mission Description and Budget Item Justification:

The Joint Fires Integration & Interoperability Team (JFIIT) funded in this program is a relatively small cell of experts in the complex and operationally critical task of coordinating Joint Fires on military targets. JFIIT adds the value of joint perspective to much larger Service investments in force elements designed to produce kinetic and non kinetic effects. Combatant commanders and capability providers actively seek JFIIT advice and assistance to improve the execution of combat fires applied in demanding coalition and joint environments.

The FY 2005 National Defense Authorization Act (NDAA) directed the transfer of US Joint Forces Command (USJFCOM) RDT&E funding of joint warfare experimentation and training programs from Navy accounts to new Defense Wide RDT&E accounts beginning in FY 2007. Funding to support the JFIIT Program prior to FY 2007 was reflected in the Navy's RDT&E Program under PE 0603857N. The new funding alignment brings the JFIIT Program into oversight by the Undersecretary of Defense, Acquisition, Technology and Logistics (USD AT&L) Director Defense Research & Engineering (DDR&E). Joint Requirements Oversight Council Memo (JROCM) 183-4, dated 8 Oct 04, directed U.S. Joint Forces Command (USJFCOM) to establish a Joint Fires Support Organization. JROCM 241-05, dated 3 Nov 05, validated the JFIIT mission. USJFCOM Directive Number 5170.2 dated 30 Nov 07, Charter for JFIIT, assigns JFIIT responsibility to improve Joint Fires.

JFIIT improves the integration, interoperability, and operational effectiveness of joint fires, with emphasis at the tactical level. JFIIT takes a holistic approach to improving Joint fires by providing solutions that produce effective target acquisition, Command and Control (C2), and interoperable firing systems, to reduce fratricide and collateral damage. This results in not only near-term tactical identification of issues and solutions, but also informs and provides a foundation for development of short and long-term operational and tactical capabilities.

JFIIT assessments evaluate Joint Fires and Combat Identification (CID) to provide recommendations based on quantifiable data to improve the efficiency and effectiveness of Joint Fires. JFIIT collects and analyzes data and provides observations, findings, conclusions, and remedial solutions to identify joint doctrine, training, and materiel, and products. JFIIT provides ground truth data collection capability to underpin credible recommendations to improve Joint Fires. Evaluations range from small, single-focus events to large, multi-event/venue exercises.

JFIIT conducts assessments in conjunction with Service and Combatant Command (COCOM) exercises, experiments, and test & evaluation events. JFIIT also assesses CID capabilities to ensure that Services and Agencies field interdependent and interoperable systems and training. JFIIT assessment efforts include verifying an accurate Joint environment is depicted during realistic training that exercises one or more Joint tasks, assessing Joint context and Joint task execution while addressing the effectiveness of a Joint training program and identifying the need for continued support of Joint fires tactics, techniques and procedures (TTP) and doctrine. JFIIT assessments support input to acquisition processes and enhance joint development as programs are funded and developed.

The primary outputs and efficiencies include:

- Improvement in the Services' ability to employ Joint fires, simply the ability to accurately strike designated targets with appropriate force and to avoid collateral damage.
- Improved Joint Intelligence, Surveillance, and Reconnaissance (ISR) and integrated Air- to- Ground training at home station and the combat training centers.

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- An enhanced Joint operational environment at the combat training centers that supports the execution of Joint tasks during deployed operations.
- Recommended solutions integrated within the DoD Joint Capabilities Integration Development System (JCIDS) and Joint C2 Capability Integration Board (C2CIB) processes.
- Identification of specific Key Performance Parameters (KPPs) and Key System Attributes (KSAs) for acquisition of new systems that meet Joint warfighter operational requirements to ensure that Services and Agencies field interdependent and interoperable systems.
- Published doctrine and Joint Tactics, Techniques and Procedures (TTP) to efficiently and effectively employ joint forces at the tactical level
- Increased effectiveness and confidence in combat identification and a reduction in fratricide during joint and coalition operations.

The emphasis of the JFIIT Capabilities Development effort is continued development of Joint Fires and combat identification capabilities. JFIIT focuses on current and emergent Joint Fires capabilities such as tactics, techniques, and procedures (TTP), Systems, and System of Systems. JFIIT is working with the Combat Training Centers to enhance Joint training for evolving joint fires issues identified during the rotational units pre-deployment exercises as the basis to develop tactical level recommendations to address the operational gaps and seams. To support Service and Component Command (COCOM) capability development efforts, JFIIT develops Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) Change Recommendations; improvements in coordinating fires, command and control, and firing systems interoperability resulting in increased effectiveness and efficiency; and provides technical expertise in identifying Joint solutions to capability gaps.

The primary outputs and efficiencies include:

- Recommendations for Counter-Rocket, Mortar, and Artillery (C-RAM) response functions
- Validated Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) Joint fires recommendations
- Improvements in Joint Terminal Attack Controller (JTAC) and Joint Fires Observer equipment and tactics, techniques and procedures (TTP)
- Appraisals of service venues joint context and ability to support joint training
- Resolution of Combat Identification and Joint Close Air Support Action Plan issues
- Publication of Tactical Leader's Joint Intelligence, Surveillance & Reconnaissance (ISR) Handbook
- Development of a Joint training capability on the Western Ranges
- Accreditation/certification for Joint fires context and training capability of all service venues
- Recommendations for tactical Joint fires improvement solutions
- Global Area Reference System (GARS) employment and implementation as a common reference system and battle management tool (2009)
- Recommendations for system integration and interoperability
- Optimum utilization of currently fielded systems as evidenced through feedback from deployed forces
- Ability to include Joint context during new system acquisition or development
- New system capability that meets current Joint operational requirements
- Proposed tactics, techniques and procedures (TTP) and doctrine
- Increased effectiveness and confidence in combat identification as evidenced through feedback from deployed forces

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- Reduced collateral damage and decreased number of fratricide incidents across the force
- Jointly trained forces

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Fires Integration & Interoperability (JFIIT) Assessments and Evaluations	7.239	7.439	7.602

The emphasis of JFIIT Assessments effort is the evaluation of Joint fires and combat identification to provide Services and Agencies findings and recommendation based on quantifiable data in order to improve Joint Fires. JFIIT collects and analyzes data and provides observations, findings, conclusions, and recommendations to identify Joint doctrine, training, and material solutions and products that promote capability improvement. Accurate data is necessary to effectively develop solutions to identified problems. JFIIT conducts assessments in conjunction with Service and Combatant Command (COCOM) exercises, experiments, and test & evaluation events. The emphasis of this JFIIT effort is assessing Joint fires and combat identification capabilities to ensure that Services and Agencies field interdependent and interoperable systems and training. JFIIT Assessment efforts include verifying an accurate Joint environment is depicted during realistic training that exercises one or more Joint tasks, assessing Joint context and Joint task execution while addressing the effectiveness of a Joint training program and identifying the need for continued support of Joint fires tactics, techniques and procedures (TTP) and doctrine. JFIIT assessments provide input to acquisition processes and enhance Joint development as programs are funded and developed.

The primary outputs and efficiencies include:

- Improvement in the Services' ability to employ Joint fires.
- Improved Joint Intelligence, Surveillance, and Reconnaissance (ISR) and integrated Air to Ground training at Home Station and the Combat Training Centers.
- An enhanced Joint operational environment at the Combat Training Centers that supports the execution of Joint tasks during service training and enhances JFIIT's ability to conduct assessments.
- Recommended solutions integrated within the USJFCOM-led Joint Capabilities Integration Development System (JCIDS) and Joint C2 Capability Portfolio Manager (JC2 CPM) processes
- Identification of specific key performance parameters (KPPs) and key system attributes (KSAs) for new systems that meet Joint warfighter operational requirements to ensure Services and Agencies field interdependent and interoperable systems
- Published doctrine and Joint Tactics, Techniques and Procedures to efficiently and effectively employ Joint forces at the tactical level
- Increased effectiveness and confidence in combat identification and a reduction in fratricide

FY 2008 Output: - JFIIT continued capability development of the Joint Intelligence, Surveillance, and Reconnaissance (JISR) Integration at the Combat Training Centers (CTC) integrated training initiative. JFIIT provided Joint fires, Joint ISR, and network subject matter expertise to: assist synchronization of joint tasks; facilitate joint mission thread execution; and provide training development and mentoring to Combat Training Center staff and observer controllers. These activities promoted the synergistic application of joint capabilities to effectively employ joint fires.

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- JFIIT, in support of US Central Command, provided planning, execution and analysis support for the United States Central Command Air Forces (USCENTAF) Atlantic Strike VI and VII exercises. This was the sixth and seventh iterations of an ongoing event to assess and train Joint Close Air Support (JCAS) aircrews, Joint Terminal Attack Controllers (JTACs), and Joint Fires Observers (JFOs). JFIIT provided daily training effectiveness feedback to CENTAF/18 Air Support Operations Group (ASOG) and exercise participants, data and recommendations for inclusion in CENTAF After Action Reports, and provided Remotely Operated Video Enhanced Receiver (ROVER) mentoring and training assistance for operators and trainers.

- JFIIT was the USJFCOM lead for the Counter-Rocket, Artillery, and Mortar (C-RAM) initiative to develop Tactics, Techniques, and Procedures for effective utilization of the current C-RAM technologies to enhance this Joint capability. JFIIT was the USJFCOM lead for the next generation of C-RAM, the Integrated Unit, Base and Installation Protection (IUBIP) system.

- JFIIT continued as USJFCOM lead for advocacy of the Global Area Reference System (GARS). This activity promoted standardized application and employment of a common coordinate format to provide timely and accurate exchange of target data to conduct joint fires.

- JFIIT continued Joint Task Execution and Joint Capabilities assessments to ensure other Brigade Combat Teams benefit from the latest lessons learned prior to deployment. Integration of this vital information into the US Army National Training Center's Leader Training Program (LTP) enabled Brigade Commanders and their staffs to quickly integrate and maximize joint systems to support joint operations.

- JFIIT continued supporting the Joint National Training Capability (JNTC) certification, accreditation, and mitigation program and execution of Joint fires related JNTC exercises. JFIIT continued identifying operational issues for the unit's pre-deployment rehearsals, prior to their deployment to the theater of operations, incorporating the most current lessons learned for implementation in combat.

FY 2009 Planned Output:

- JFIIT will continue to refine and enhance support to pre-deployment mission rehearsal exercises as requested by the Services and Combatant Commands. Evolving joint fires issues identified during the rotational units pre-deployment exercises form the basis to develop tactical level recommendations to address the operational gaps and seams.

- JFIIT will continue to develop the Joint Intelligence, Surveillance, and Reconnaissance (ISR) Integration at the Combat Training Centers (CTC) integrated training initiatives. JFIIT will provide Joint fires, Joint ISR, and network subject matter expertise to: assist synchronization of joint tasks; facilitate joint mission thread execution; and training development and mentoring to Combat Training Center staff and observer controllers. These activities will promote the synergistic application of Joint capabilities to effectively perform joint fires.

- JFIIT will continue as USJFCOM lead for advocacy of the Global Area Reference System (GARS). This will promote standardized application and employment of a common coordinate format to provide timely and accurate exchange of target data to conduct joint fires.

- JFIIT will provide planning, execution, and analysis support for future USCENTAF Atlantic Strike and Pecos Strike (West Coast-based) exercises. This is an ongoing event to evaluate and train Joint Close Air Support aircrews, Joint Terminal Attack Controllers, and Joint Fires Observers.

- FY 2010 Planned Output:

- JFIIT will continue to refine and enhance support to pre-deployment mission rehearsal exercises as requested by the Services and Combatant Commands. Evolving joint fires issues identified during the rotational units pre-deployment exercises form the basis to develop tactical level recommendations to address the operational gaps and seams.

- JFIIT will continue to develop the Joint Intelligence, Surveillance, and Reconnaissance (ISR) Integration at the Combat Training Centers (CTC) integrated training initiatives. JFIIT will provide Joint fires, Joint ISR, and network subject matter expertise to: assist synchronization of joint tasks.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0604828D8Z - Joint Fires Integration & Interoperability	PROJECT P857
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Fires Integration & Interoperability (JFIIT) Capabilities Development	8.730	9.374	9.370	

The emphasis of JFIIT Assessments effort is the evaluation of Joint fires and combat identification to provide Services and Agencies findings and recommendation based on quantifiable data in order to improve Joint Fires. JFIIT collects and analyzes data and provides observations, findings, conclusions, and recommendations to identify Joint doctrine, training, and material solutions and products that promote capability improvement. Accurate data is necessary to effectively develop solutions to identified problems. JFIIT provides a truth-based data collection capability to support a holistic approach to the overall improvement of Joint fires. Evaluations range from small, single-focus events to large, multi-event/venue exercises.

JFIIT conducts assessments in conjunction with Service and Combatant Command (COCOM) exercises, experiments, and test & evaluation events. The emphasis of this JFIIT effort is assessing Joint fires and combat identification capabilities to ensure that Services and Agencies field interdependent and interoperable systems and training. JFIIT Assessment efforts include verifying an accurate Joint environment is depicted during realistic training that exercises one or more Joint tasks, assessing Joint context and Joint task execution while addressing the effectiveness of a Joint training program and identifying the need for continued support of Joint fires tactics, techniques and procedures (TTP) and doctrine. JFIIT assessments provide input to acquisition processes and enhance Joint development as programs are funded and developed.

The primary outputs and efficiencies include:

- Improvement in the Services' ability to employ Joint fires.
- Improved Joint Intelligence, Surveillance, and Reconnaissance (ISR) and integrated Air to Ground training at Home Station and the Combat Training Centers.
- An enhanced Joint operational environment at the Combat Training Centers that supports the execution of Joint tasks during service training and enhances JFIIT's ability to conduct assessments.
- Recommended solutions integrated within the USJFCOM-led Joint Capabilities Integration Development System (JCIDS) and Joint C2 Capability Portfolio Manager (JC2 CPM) processes
- Identification of specific key performance parameters (KPPs) and key system attributes (KSAs) for new systems that meet Joint warfighter operational requirements to ensure Services and Agencies field interdependent and interoperable systems
- Published doctrine and Joint Tactics, Techniques and Procedures to efficiently and effectively employ Joint forces at the tactical level
- Increased effectiveness and confidence in combat identification and a reduction in fratricide

FY 2008 Output: JFIIT conducted Joint fires and combat identification assessments in conjunction with Service and USJFCOM exercises, experiments, and test and evaluation events primarily in the areas of Joint air-to-ground fires integration with maneuver and Joint ISR (JISR) support to maneuver. JFIIT is also chartered to develop techniques for emerging combat identification technology enhancements and Joint fires initiatives.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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- JFIIT, in support of US Army Training and Doctrine Command (TRADOC) and USAF Air Combat Command (ACC), began an in-depth assessment of Joint fires training for units deploying to the Central Command (CENTCOM) Area of Responsibility (AOR). This was accomplished using the Brigade Combat Team Air-Ground Integration (BCT A-GI) initiative in response to Commanding General TRADOC memo to Commander, USJFCOM requesting support to address 24 Joint Interagency Intergovernmental Multinational (JIIM) Gaps. JFIIT initiated the assessment plan developed last year and published two interim reports. JFIIT participated in the development of new or improved home-station and combat training center training for the deploying Army Brigades and Air Force Squadrons.

- JFIIT, in support of USA TRADOC and USAF ACC, established an effort to improve the tactical application of JISR and the Integration of Air to Ground Operations at the National Training Center, Fort Irwin, CA, and Green Flag West, Nellis AFB, NV. JFIIT provided JISR and Joint fires training support and feedback to exercise participants, observer trainers/controllers, and venue support staff. JFIIT provided multiple post-event debriefs to the venue staff and Exercise Summary Reports to USJFCOM. Benefits included better trained service members, improved ability to execute joint tasks at service training venues, and improved Joint operational environment and Joint context at a Service Combat Training Center.

- JFIIT, in support of USA TRADOC and USAF ACC, initiated an effort to improve the tactical application of JISR and the Integration of Air to Ground Operations at the Joint Readiness Training Center (JRTC), Fort Polk, LA, and Green Flag East, Barksdale AFB, LA. JFIIT conducted multiple site visits and provided post-event debriefs to the venue staff to include Exercise Summary Report comments from a BCT AG-I rotation at JRTC.

- JFIIT, in support of USA TRADOC and US Air Forces Europe (USAFE), initiated an effort to improve the tactical application of JISR and the Integration of Air to Ground Operations at the Joint Multi-National Readiness Center, Hoenfels, Germany. JFIIT conducted multiple site visits, provided post-event debriefs to the venue staff, and is prepared to improve Joint context during future visits.

FY 2009 and 2010 Planned Output

- JFIIT, in support of USMC Marine Air-Ground Task Force-Training Command (MAGTF-TC), will initiated an effort to improve the tactical application of JISR and the Integration of Air to Ground Operations at the Marine Corps Air Ground Combat Center, Twenty nine Palms, CA. JFIIT will conduct multiple site visits and provided post-event debriefs to the venue staff. In addition, JFIIT will provide multiple Joint ISR Seminars to training units via video teleconference and provide an initial estimate of supportability to Marine Corps Tactics & Operations Group (MCTOG). Benefits include a better joint training environment for service members.

- JFIIT, as the Non-Cooperative Target Identification (NCTI) analytical lead for the Coalition Combat Identification Advanced Concept Technology Demonstration (CCID ACTD) Exercise Bold Quest, JFIIT will produce an analytical report for the CCID ACTD Military Utility Assessment (MUA) intended to influence the FY10-15 Program Objectives Memorandum (POM). In addition, JFIIT will provide instrumentation, data collection, data capture, data management, real-time mission monitoring, and feedback to participants via daily debriefings. Benefits will include improved ability to assess various participating coalition and US systems, improved joint task execution, and an effective Military Utility Assessment of NCTI systems while greatly reducing the timeline required to provide fact-based recommendations.

- JFIIT will conduct field assessments on equipment, capabilities, and concepts in support of the Joint Close Air Support (JCAS) Executive Steering Committee's, JCAS Action Plan. JFIIT will analyze and report on numerous equipment and tactics, techniques and procedures (TTP) shortfalls prior to fielding and supported testing and training in the close air support area. Benefits include better integration and interoperability of JCAS systems, improved TTP, and better execution of JCAS by the Services.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0604828D8Z - Joint Fires Integration & Interoperability		PROJECT P857
Category	Name	Location	Type of Work and Description	Award Date
Other:				
	VARIOUS	VARIOUS	Funds are suballocated to JFCOM for JFIT.	Mar 08

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0604828D8Z - Joint Fires Integration & Interoperability							P857				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Fires Integration & Interoperability (JFIIT) Assessments and Evaluations	MIPR			2978		3111		7602						
Joint Fires Integration & Interoperability (JFIIT) Capabilities Development	MIPR			2978		3111		9370						
Subtotal:				5956		6222		16972						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Development Test and Evaluation	MIPR	JFIIT/Various	743	700	1-4Q	750								
Operational Test and Evaluation	CPFF	SAIC, BAE, NG/Eglin AFB	9297	8913	1-4Q	9391								
Operational Test and Evaluation	CPAF	TAMS/Eglin AFB	323	400	1-4Q	450								
Subtotal:			10363	10013		10591								
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			10363	15969		16813		16972						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604828D8Z - Joint Fires Integration & Interoperability

PROJECT
P857

Event Name	FY 08				FY 09				FY 10																			
	1	2	3	4	1	2	3	4	1	2	3	4																
Operational Test & Planning, Publications																												

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0604828D8Z - Joint Fires Integration & Interoperability

PROJECT
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<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Operational Test & Planning	2Q - 4Q	1Q - 4Q	1Q - 4Q					
Publications	2Q - 4Q	1Q - 4Q	1Q - 4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P017 Reduction in Total Ownership Cost Projects	23.685	24.359	24.647					

A. Mission Description and Budget Item Justification:

The Under Secretary of Defense (Acquisition, Technology & Logistics), (USD(AT&L)), defined the mission for the Reduction in Total Ownership Cost (R-TOC) program is the reduction of ownership costs for defense systems. The R-TOC program funds activities and initiatives that will:

1. Increase the reliability, maintainability, supportability and thus increase readiness of new or existing defense systems
2. Reduce logistics footprint
3. Generate future cost reductions in total ownership cost

These individual initiatives are complete efforts within themselves that yield complete redesigns that the Services are committed to put into production and operation. The initiatives optimize cost avoidance, ultimately reducing the operating and support costs for systems.

The Department has set an FY 2010 R-TOC goal of reducing the total defense systems inflation increase in Operations and Support (O&S) cost by 30 percent between FY 2004 and FY 2010. This Program Element (PE) provides a major portion of the program funding to achieve this goal. The successful demonstration of the R-TOC program initiatives should stimulate additional initiatives by the Services to achieve even greater cost avoidances.

Individual R-TOC Project Management rests with the Services and their Project Managers. Each Service has an active R-TOC Point of Contact (POC) for the initial interface between OSD and the R-TOC Project Managers.

The average Return on Investment (ROI) for FY 2008 projects (based on discounted cash flow calculations) is approximately 28:1 with \$1.176 billion in cost avoidances across the life cycle of the affected systems. These cost avoidances will be lost without the requested funding in FY 2009, which is needed to complete the projects begun with FY 2008 funding. The average Return on Investment (ROI) for these FY 2009 new start projects (based on discounted cash flow calculations) is approximately 72:1 with \$2.006 billion in cost avoidances across the life cycle of the affected systems.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	25.006	24.765	25.089	
Current BES/President's Budget (FY 2010)	23.685	24.359	24.647	
Total Adjustments	-1.321	-0.406	-0.442	
Congressional Program Reductions				
Congressional Rescissions		-0.136		
Congressional Increases				
Reprogrammings	-0.769	-0.270		
SBIR/STTR Transfer	-0.504			
Other	-0.048		-0.442	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

There is an annual call for proposed project plans in October. Projects are submitted by the Services annually in January. The project plan format is provided with the call for submission of Service projects. Each project plan contains:

1. Problem statement
2. Impact statement
3. Technical description
4. Risk analysis
5. Proposed phases
6. Expected deliverables and results or outcomes
7. Program management
8. Cost/benefit analysis
9. Schedule
10. Implementation plan

The project evaluation criteria are also provided as part of the call for use by the Services in arriving at their prioritized project list. There are five objective and six subjective categories for evaluation.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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0605017D8Z - Reduction in Total Ownership Cost (RTOC)

The Services receive project plans and make a Service priority ranking based on detailed analysis of each proposed initiative against the eleven evaluation criteria. This priority ranking is sent to the OSD lead. Upon acceptance and approval of the projects by OSD, the projects are briefed to the R-TOC Forum and Congressional staff, as required. Funding is distributed equally between the Services based on priority and the evaluation process results.

Upon final funding approval, OSD transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the R-TOC Initiative through the OSD lead office.

A semi-annual Project Report format has been defined, approved by the Services, and is required for each funded project. These reports are submitted to the OSD R-TOC Initiative lead office. OSD analyzes project status, progress and project statistics and informs the Service POCs of any project problems. Projects are also required to report verbally at the quarterly R-TOC Forums, as appropriate.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	See below					
09	See below					
10	See below					

Comment:

The vision is that all defense systems will perform with increasing readiness and capability while avoiding increased operations and support costs and improve logistics footprint by institutionalizing the continuous implementation of innovative process and hardware improvement. Existing Baseline: FYDP O&S Costs for FY 2004; Planned Performance Improvement/Requirement Goal: The goal is to "maximize cost avoidance on total defense systems FY 2010 O&S costs by offsetting 30 percent of the inflation predicted from a FY 2004 baseline. Actual Performance Improvement: Unknown at this time. FY 2007 and FY 2008 projects are still in development and implementation. Planned Performance Metric/Methods of Measurement: Return on Investment (ROI) measured over the Life Cycle (LC) of each system. Actual Performance Metric/Methods of Measurement: Return of Investment (ROI) measured over the Life Cycle (LC) of each system.

The objective of each of the projects is the reduction of operations and support (O&S) costs for the affected systems. ROI is the primary performance metric for the projects and for the R-TOC initiative. Each project plan includes a cost/benefit analysis, which is based on discounted cash flow calculations of project investment costs and projected cost avoidances. OMB discount rates are used to provide real comparisons of future value against current uses of resources. Projected cost avoidances are based on engineering estimates of the benefits provided by project implementations. Sources of cost avoidances are defined as part of the project submittal and come from any O&S cost source (fewer spares, lower maintenance hours, faster turnaround times, reduced scheduled maintenance, etc.). Updated ROI calculations are part of the required semi-annual project reports to provide tracking of this metric.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4		PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)				PROJECT P017		
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P017 Reduction in Total Ownership Cost Projects	23.685	24.359	24.647					

A. Mission Description and Budget Item Justification:

The Under Secretary of Defense (Acquisition, Technology & Logistics), (USD(AT&L)), defined mission for the Reduction in Total Ownership Cost (R-TOC) program is the reduction of ownership costs for defense systems. The R-TOC program funds activities and initiatives that will:

1. Increase the reliability, maintainability, supportability and thus increase readiness of new or existing defense systems
2. Reduce logistics footprint
3. Generate future cost reductions in total ownership cost

These individual initiatives are complete efforts within themselves that yield complete redesigns that the Services are committed to put into production and operation. The initiatives optimize cost avoidance, ultimately reducing the operating and support costs for systems.

The Department has set an FY 2010 R-TOC goal of reducing the total defense systems inflation increase in Operations and Support (O&S) cost by 30 percent between FY 2004 and FY 2010. This Program Element (PE) provides a major portion of the program funding to achieve this goal. The successful demonstration of the R-TOC program initiatives should stimulate additional initiatives by the Services to achieve even greater cost avoidances.

Individual R-TOC Project Management rests with the Services and their Project Managers. Each Service has an active R-TOC Point of Contact (POC) for the initial interface between OSD and the R-TOC Project Managers.

The average Return on Investment (ROI) for FY 2008 projects (based on discounted cash flow calculations) is approximately 28:1 with \$1.176 billion in cost avoidances across the life cycle of the affected systems. These cost avoidances will be lost without the requested funding in FY 2009, which is needed to complete the projects begun with FY 2008 funding. The average Return on Investment (ROI) for these FY 2009 new start projects (based on discounted cash flow calculations) is approximately 72 with \$2.006 billion in cost avoidances across the life cycle of the affected systems.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2008 Accomplishments	23.685			

Cost avoidances established for the below efforts are based on engineering estimates of the benefits provided by project implementations. Sources of cost avoidances are defined as part of the project submittal and come from any O&S cost source (fewer spares, lower maintenance hours, faster turnaround times, reduced scheduled maintenance, etc.). The average Return on Investment (ROI) for FY 2008 projects (based on discounted cash flow calculations) was approximately 28:1 with \$1.176 billion in cost avoidances across the life cycle of the affected systems.

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APPROPRIATION/ BUDGET ACTIVITY

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Army Projects: Two test units have been delivered and performance testing has been conducted on the first 2-Pallet Environmental Control System (ECS) prototypes for the HH-60M. Insensitive Munitions (IM) have been developed to make the GMLRS rockets less likely to violently react prematurely from external stimuli. Testing a modification to existing Stryker software to allow it to be loaded from a single connection and display the current software versions through the onboard equipment. Developed Condition Based Maintenance Software (CBMS) for Shadow aircraft that will deliver a fully qualified prognostic system ready for use by the field maintainers to predict whether the aircraft and/or system is physically capable of executing its assignment.

Stryker Software Load Version VDT

New Barrel Coating (120mm Abrams, FCS, NLOS-C)

HH-60M ECS

M113 X200 Spline Drive

UAS Prognostic Sensors

HIMARS IM

ECBC

SKOT Tools Sets

HIMARS GDU/FCU

Extraction Parachute (Cargo Drop)

M9 Mortar Base

Navy Projects: Gained efficiencies in the validation screening and brokering of shipboard maintenance projects and began implementation of Item Unique Identification (IUID) onboard operational Navy ships. Began shipboard demonstration of maintenance-free magnetic couplings on CVNs, which will reduce wear and improve life span of bearings and pump seals; as well as reduce the high cost of alignment and use of hazardous materials. Began procurement and use of infrared cameras to identify undersized or overloaded components and worn parts that increase heat and may result in shipboard fires. Developed tools to assist in determining hull fouling that creates drag and fuel inefficiencies, thereby aiding power conservation. Began transition to fiber optic built-in test equipment on F/A-18 E/F aircraft, which is minimizing aircraft downtime.

Common Ship: Ship's Material Condition Model

Common Ship: CVN Magnetic Coupling

H-60: Torque Shaft Lever / Support Bearings

Common Ship: IR Camera

Common: Power Conservation Management

F/A-18E/F: Fiber Optic Network

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)	PROJECT P017
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Air Force Projects: Prototyped reliability predictor tools for select Air Force aircraft engines in support of AF Reliability Centered Maintenance program. Completed preliminary design and subsystem testing on a prototype system used to analyze lubricant debris particles in select turbofan engines in order to reduce replacement and maintenance costs. Delivered production-ready prototype of portable, extended wear, self powered, automatic bladder relief system for aircrew; re-designed device allows crewmember relief without unbuckling from ejection seat while reducing unit production cost.

B-1B: F101-GE-102

F-15/F-16: F110 X-Ray Fluorescence Portable Lube System Debris Analyzer

Advanced Composite Tower

Multiple Systems: Restoration of Dimensional Tolerances

F-16: Field Backstop Test data Collection and Analysis System

F-22: F119 Engine Ti Repair

F-22: F119 Engine Ni 100 Integrally Bladed Rotor Repair

AEWS: FPS-117 Radome Fleet Replacement

F-16: F110-GE-129/129B RCM Calculator

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2009 Plans		24.359		

The objective of each of the projects, listed below, is the reduction of operations and support (O&S) costs for the affected systems. ROI is the primary performance metric for the projects and for the R-TOC initiative. Each project plan includes a cost/benefit analysis, which is based on discounted cash flow calculations of project investment costs and projected cost avoidances. OMB discount rates are used to provide real comparisons of future value against current uses of resources. Projected cost avoidances are based on engineering estimates of the benefits provided by project implementations. Sources of cost avoidances are defined as part of the project submittal and come from any O&S cost source (fewer spares, lower maintenance hours, faster turnaround times, reduced scheduled maintenance, etc.). Updated ROI calculations are part of the required semi-annual project reports to provide tracking of this metric. The estimated Return on Investment (ROI) for FY 2009 projects (based on discounted cash flow calculations) is 72:1 with \$2.006 billion in cost avoidances across the life cycle of the affected systems.

Army Projects: Continue to pursue operation and maintenance savings thru projects that improve reliability, maintainability and supportability of Army systems. Qualify a smaller off-the-shelf FLIR System for use on the HH-60M MEDEVAC Helicopter. Develop and integrate a reflective barrier into the system skin between the refrigeration system and the sun thereby transferring heat to the surrounding environment and minimizing/diffusing heat transfer to the surface of the fielded refrigerated container. Determining material changes in the canopy fabric, suspension lines and/or structural enhancements to the basic design, will result in a much more robust design appropriate for high speed drogue applications.

HH-60M ECS

HIMARS IM

ECBC

Extraction Parachute (Cargo Drop)

Refrigeration Improvements (Container System)

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AH-64 Hydraulic Hand Pump

AH-64 Servo

HH-60 FLIR

81mm Monopack

Guardrail AQL RF Antenna Panel

120mm Mortar M9 Baseplate

Navy Projects: Continue three current projects and begin eleven new projects. Power conservation measures and gained efficiencies through standardization are the major themes for Navy's FY09 projects. Navy will enhance propeller performance by minimizing surface roughness from bio-fouling and calcareous deposits. NAVSEA will define requirements for cathodic protection of Marine 5000 series aluminum alloys to reduce corrosion. NAVSEA will develop a solvent-free, high-build antifouling coating for ships and submarines, which will support the 12-year docking cycle for aircraft carriers. Improve shipboard surface coatings life span by implementing validated repeatable quantitative measures.

Common Ship: Power Conservation Management

F/A-18E/F: Fiber Optic Network

V-22 NLG Mech Improvement

Common Ship: Coating Surface Ship Propellers

ASE: F/A-18 SRA Pinpoint Routines

Common Ship: High Solids Antifoulant Coating

Common Ship: Cathodic Protection of Aluminum

ASE: Spectrometer Modification

NAVAIR: CMIS TDSA-KITMIS Migration

Common Ship: Surface Profile Tool

H-60: Blade D-ice Controller

F/A-18E/F: Fiber Optic Cable Restore

LCS PMO: S1000/SCORM Integration

Air Force Projects: Deliver updated F-16 avionics test stands capable of detecting intermittent faults in chassis wiring under realistic environmental conditions. Continue development and testing of reliability predictor tools for select Air Force aircraft engines to include interfacing with real-time data. Begin development of a system for the collection, storage, and retrieval and analysis of F-16 avionics test data; system will automate comparison of field and depot test results to determine and reduce the causes of non-repeatable faults. Develop a methodology to apply individual engine flight data, rather than average fleet statistics, to predict and schedule engine maintenance. Deliver and complete a field trial on a production-ready, cost-effective, lubricant debris particle analyzer to identify bearing failures on turbofan engines.

F-16: Field Backstop Test Data Collection and Analysis System

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)	PROJECT P017
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F-22: F-119 Engine Ti Repair
 F-22: F-119 Engine NI 100 Integrally Bladed rotor (IBR) Repair
 AEWS: FPS-117 Radome Fleet Replacement
 F-16: F-110-GE-129/129B RCM Calculator
 F-16: F-110 Engine Interval Extension

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2010 Plans			24.647	

The objective of each of the projects, listed below, is the reduction of operations and support (O&S) costs for the affected systems. ROI is the primary performance metric for the projects and for the R-TOC initiative. Each project plan includes a cost/benefit analysis, which is based on discounted cash flow calculations of project investment costs and projected cost avoidances. OMB discount rates are used to provide real comparisons of future value against current uses of resources. Projected cost avoidances are based on engineering estimates of the benefits provided by project implementations. Sources of cost avoidances are defined as part of the project submittal and come from any O&S cost source (fewer spares, lower maintenance hours, faster turnaround times, reduced scheduled maintenance, etc.). Updated ROI calculations are part of the required semi-annual project reports to provide tracking of this metric. The estimated Return on Investment (ROI) for FY 2010 projects (based on discounted cash flow calculations) is 57:1 with \$2.232 billion in cost avoidances across the life cycle of the affected systems.

Army Projects: Leverage missile program technology to incorporate state of the art Common-ESAF (C-ESAF) components that will reduce obsolescence on the GMLRS. Redesign H-60 Hydraulic Power Supply (HPS) reducing the primary causes of failure are internal and external leaks, overheating and excessive wear. Design and prototype howitzer front split ring using higher strength steel to double functional life improving durability and reliability.

HH-60 FLIR
 120mm Mortar M9 Baseplate (TENT)
 HIMARS/GMLRS ESAF
 HH-60 Hand Pump
 SOA CAAS Training Simulation
 Overwatch Display Control Module (TENT)

Navy Projects: Continue nine projects begun earlier and four new Common Ship projects. Improving maintenance technologies that will reduce cost and add efficiency are the primary theme for FY10 projects. NAVSEA will provide underwater hull condition based maintenance that will reduce maintenance requirements and improve warfighting readiness. NAVSEA will also introduce the use of vapor corrosion inhibitors in ship voids to reduce the effects of corrosion causing moisture within voids in order to double the maintenance interval. NAVSEA will work with NAVAIR to design a new machined hinge replacement for Main Landing Gear door hinges to meet current loading requirements.

Common Ship: Coating Surface Ship Propellers
 ASE: F/A-18E/F SRA Pinpoint Routines
 Common Ship: High Solid Solids Antifoulant Coating

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 4	PE NUMBER AND TITLE 0605017D8Z - Reduction in Total Ownership Cost (RTOC)	PROJECT P017
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Common Ship: Cathodic Protection of Aluminum
 ASE: Spectrometer Modification
 NAVAIR: CMIS TDSA-KITMIS Migration
 Common Ship: Surface Profile Tool
 H-60: Blade De-ice Controller
 F/A-18E/F: Fiber Optic Cable Restore
 LCS PMO: S1000/SCORM Integration
 Common Ship: Underwater Hull CBM
 Common Ship: High Solid Silica Alkyds
 Common Ship: VCIs for Voids
 Common Ship: Main Landing Gear Door Hinge

Air Force Projects: Deliver prototype composite material replacement radomes and towers that meet or exceed the structural requirements of current radomes and towers, while reducing total ownership cost and environmental impacts. Develop and validate through prototyping a process for repairing single titanium and nickel blades that are part of the Integrally Bladed Rotor (IBR); develop process to reduce need to replace entire IBR assembly, if single blade is damaged. Revise and update multiple aircraft and engine repair and coating processes to reflect modern processes that are more cost effective and environmentally sound. Implement a system that will apply individual engine flight data, rather than average fleet statistics, to predict and schedule engine maintenance. Test prototype digital heads up display for the F-15 to replace current cathode ray tube (CRT) based displays that are costly to maintain.

F-16: Field Backshop Test Data Collection and Analysis System
 F-22: F-119 Engine Ti Repair
 F-22: F-119 Engine NI 100 Integrally Bladed rotor (IBR) Repair
 F-16: F-110-GE-129/129B RCM Calculator
 F-16: F-110 Engine Interval Extension
 Multiple Systems: Stripping Solution
 F-22/F-35: Laser Shock Peening
 Multiple Systems: Powder Coating
 Multiple Systems: No-Strip Touch-Up Repair
 Multiple Systems: Coating Removal Process
 Multiple Systems: Laser Inspection of GTE
 F-15/F-16: Laser Cladding/LAM
 Multiple Systems: Low Radioactivity Thermal Barrier

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 4

0605017D8Z - Reduction in Total Ownership Cost (RTOC)

P017

Multiple Systems: Parent Material Restoration

F-15: Digital Heads Up Display

Multiple Systems: Single Part Wheel Paint

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

There is an annual USD(AT&L) call for proposed project plans in October. Projects are submitted by the Services annually in January. The project plan format is provided with the call for submission of Service projects. Each project plan contains:

1. Problem statement
2. Impact statement
3. Technical description
4. Risk analysis
5. Proposed phases
6. Expected deliverables and results or outcomes
7. Program management
8. Cost/benefit analysis
9. Schedule
10. Implementation plan

The project evaluation criteria are also provided as part of the call for use by the Services in arriving at their prioritized project list. There are five objective and six subjective categories for evaluation.

The Services receive project plans and make a Service priority ranking based on detailed analysis of each proposed initiative against the eleven evaluation criteria. This priority ranking is sent to the OSD lead. Upon acceptance and approval of the projects by OSD, the projects are briefed to the R-TOC Forum and Congressional staff, as required. Funding is distributed equally between the Services based on priority and the evaluation process results.

Upon final funding approval, OSD transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the R-TOC Initiative through the OSD lead office.

A semi-annual Project Report format has been defined, approved by the Services, and is required for each funded project. These reports are submitted to the OSD R-TOC Initiative lead office. OSD analyzes project status, progress and project statistics and informs the Service POCs of any project problems. Projects are also required to report verbally at the quarterly R-TOC Forums, as appropriate.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 4

0605017D8Z - Reduction in Total Ownership Cost (RTOC)

P017

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
4 - Advanced Component Development and Prototypes (ACDP)			0605017D8Z - Reduction in Total Ownership Cost (RTOC)							P017				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Army			15333	7745	1Q	7970	1Q	8321	1Q					
Navy			16138	7745	1Q	7969	1Q	8321	1Q					
Air Force			16139	7744	1Q	7969	1Q	8005	1Q					
Subtotal:			47610	23234		23908		24647						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
RTOC Program Support and Analysis (IDA)			1200	451	1Q	451	1Q							
Subtotal:			1200	451		451								
Project Total Cost:			48810	23685		24359		24647						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0605017D8Z - Reduction in Total Ownership Cost (RTOC)

PROJECT
P017

Event Name	FY 08				FY 09				FY 10																																							
	1	2	3	4	1	2	3	4	1	2	3	4																																				
(1) Contract Preparation																																																
(2) System Development																																																
(3) Quality Design and Build																																																
(4) Developmental Technical Testing																																																
(5) Developmental Evaluation																																																

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY
4 - Advanced Component Development and Prototypes (ACDP)

PE NUMBER AND TITLE
0605017D8Z - Reduction in Total Ownership Cost (RTOC)

PROJECT
P017

<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Contract Preparation	2Q - 4Q	1Q - 4Q	1Q - 2Q					
System Development	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Quality Design and Build	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Developmental Technical Testing	1Q - 4Q	1Q - 4Q	1Q - 4Q					
Developmental Evaluation	1Q - 4Q	1Q - 4Q	1Q - 4Q					

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E - DW/BA #4		R-1 Item Nomenclature: Joint Electromagnetic Technology (JET) Program/ 0303191D8Z		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	9.157	5.494	3.949	
A. Mission Description and Budget Item Justification:				
The JET Program supports the Defense Community in general with a particular emphasis on the communication requirements of Special Forces and Intelligence. Details of the program are classified. This program is funded under Budget Activity 4, Demonstration and Validation.				
Program Accomplishments and Plans:				
FY 2008 Accomplishments: (\$9.157 million)				
<ul style="list-style-type: none"> Program planning and support. 				
FY 2009 Plans: (\$5.494 million)				
<ul style="list-style-type: none"> Program planning and support. 				
FY 2010 Plans: (\$3.949 million)				
<ul style="list-style-type: none"> Program planning and support. 				
B. Program Change Summary:				
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Previous Presidents Budget	9.175	3.524	3.974	
Current Presidents Budget	9.157	5.494	3.949	
Total Adjustments	-0.018	1.970	-0.025	
Congressional program reduction				
Congressional rescissions				
Congressional Increase		2.000		
Reprogrammings				
SIBR/STTR Transfer				

Program Adjustments	-0.018	-0.030	-0.025
PBD Adjustments			
Change Summary Explanation: FY 2008: Program adjustment. FY 2009: Program adjustment, Congressional Add. FY 2010: Program adjustment.			
C. Other Program Funding Summary: N/A			
D. Acquisition Strategy: N/A			
E. Performance Metrics:			
<ul style="list-style-type: none">- Numbers of operational field demonstrations.- Numbers of false-positive results.- Successful technology transfer to service component.- Number of service requirements satisfied.			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)						
	COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P051	Defense Acquisition Challenge Program (DACP)	28.188	28.409	28.862				

A. Mission Description and Budget Item Justification:

Authorized by Title 10, U.S. Code, Section 2359b, the Defense Acquisition Challenge Program (DACP) provides increased opportunities to insert innovative and cost-saving technologies into acquisition programs of the Department of Defense. DACP funds the test and evaluation of technologies and products with potential to improve performance, affordability, manufacturability, or operational capability of current acquisition programs at the component, subcomponent, or system level.

Since the program inception in FY 2003, OSD has initiated 105 projects; 39 projects have been completed to date; 28 met Service or Agency testing requirements and 23 led to procurements; To date, 16 projects have yielded technology currently in use by our warfighters in Iraq, Afghanistan, or at U.S. training facilities.

The Defense Acquisition Challenge Program (DACP) increases opportunities for domestic vendors to enter the DoD acquisition process. Although business size is not an evaluation criterion, it is noteworthy that to date approximately 60 percent of the DACP projects awarded are with technology providers at the small or mid-sized enterprise level. DACP has the additional DoD/National Security benefit of expanding the industrial base for defense acquisition.

Final selection of FY 2010 DACP new start projects will be determined in September 2009.

Congressional authority to execute Defense Acquisition Challenge Program currently ends September 30, 2012 (Title 10, U.S. Code, Section 2359b).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	28.718	30.363	30.882	
Current BES/President's Budget (FY 2010)	28.188	28.409	28.862	
Total Adjustments	-0.530	-1.954	-2.020	
Congressional Program Reductions		-1.797		
Congressional Rescissions		-0.157		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.475			
Other	-0.055		-2.020	

The change in the FY 2008 funding amount from last year's President's Budget to this year is as a result of the implementation of mandated Congressional adjustments in SBIR/STTR and other DoD adjustments.

Other: The change in FY2010 reflect DoD programmatic decisions and fiscal alignments.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

The Acquisition Strategy for DACP is as outlined in Title 10. DACP is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DACP funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or operational capability of an existing acquisition program. If testing is successful, it is expected that procurement using the respective current program funding would be used for acquisition.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)					PROJECT P051
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P051 Defense Acquisition Challenge Program (DACP)	28.188	28.409	28.862				

A. Mission Description and Budget Item Justification:

Authorized by Title 10, U.S. Code, Section 2395b, the Defense Acquisition Challenge Program (DACP) provides increased opportunities to insert innovative and cost-saving technologies into acquisition programs of the Department of Defense. DACP funds the test and evaluation of technologies and products with potential to improve performance, affordability, manufacturability, or operational capability of current acquisition programs at the component, subcomponent, or system level.

Since the program inception in FY 2003, Office of the Secretary of Defense (OSD) has initiated 118 projects; 58 projects have been completed to date: 42 met Service or Agency testing requirements; and 52 led to procurements. To date, 22 projects have yielded technology currently in use by our warfighters in Iraq, Afghanistan, or at U.S. training facilities.

The Defense Acquisition Challenge Program (DACP) increases opportunities for domestic vendors to enter the DoD acquisition process. Although business size is not an evaluation criterion, it is noteworthy that to date approximately 60 percent of the DACP projects awarded are with technology providers at the small or mid-sized enterprise level. DACP has the additional DoD/National Security benefit of expanding the industrial base for defense acquisition.

Final selection of FY 2010 DACP new starts will be determined in September 2009.

Congressional authority to execute Defense Acquisition Challenge Program currently ends September 30, 2012 (Title 10, U.S. Code, Section 2359b).

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
10kW Tactical Vehicle Inverter System (Army)	0.719		

Outcome: The outcome of this effort is to purchase and evaluate several 10 kilowatt inverter systems developed by commercial industry to determine if they meet the military's electrical and environmental requirements. These inverters will have to meet the same requirements as the vehicle-mounted Auxiliary Power Unit (APU). One key benefit in replacing the APU is a reduction in weight to light tactical vehicles of up to 500 lbs. The primary outputs and efficiencies to be demonstrated in the DAC Test are: (1) a reduction in weight to light tactical vehicles of up to 500 lbs, (2) potential procurement savings of \$1.041 million, (3) potential Life Cycle O&S Savings of \$10.695 million and provide a ROI of 4.28.

FY 2008 Output: DRS Pivotal Power delivered their first three units for Electrical and Operational Testing in Mar 08. The Electrical Testing at Ft Belvoir started in May and was completed in July 08. The inverter was installed on the M1151A1 and shipped to Army Test Center for the Operational Testing. The inverter is being tested and is expected to be finished 2Q FY 2009.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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FY 2009 Output: The Operational Test Report will be written and submitted to the Power Generation Branch for review and comments.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Angel Fire - Situational Awareness of Large-Area Urban Operations (Air Force)	1.379			

Outcome: Provide a high-resolution spot-beam capability; a night, infrared, wide-area surveillance capability; and a comprehensive plan to transition Angel Fire (AF) to a full acquisition program. AF is a tactical situational awareness system that provides real-time, high resolution, city-sized images of infrastructure, vehicles and people to hundreds of users. This expansive coverage enhances tactical support, forensic analysis, and predictive analysis that in turn directly supports urban combat, base defense, border security, improvised explosive device detection and other anti-insurgency/counter terrorist efforts. Following a successful demonstration of the basic AF capability at the Marine Corps Air/Ground Combat Center in May/June 2006, United States Marine Corps (USMC) specifically requested three further refinements that would "customize" AF for deployment/employment in Operation Iraqi Freedom (OIF). The lead service is Air Force. The primary outputs and efficiencies are: (1) spot beam performance that will provide a multi-beam high-resolution capability to augment the wide-area lower resolution AF imagery, (2) provision of a night-time infrared capability similar in military utility to the day, optical capability; and (3) provision of a transition plan and associated documentation that will allow rapid transition of the AF capability to a fully developed acquisition program.

FY 2008 Output: Procured infrared cameras; conducted software integration activities; conducted aircraft integration; conducted flight evaluation operations and transition planning. Delays in software and aircraft integration necessitated delays in deployment of this Angel Fire Spiral.

FY 2009 Planned Output: Delivery of first aircraft is now scheduled 3Q FY 2009. The transition manager is Air Force Research Lab.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Command Control (C2) Resource Management: Master Caution Panel (MCP) (Air Force)	0.279			

Outcome: Demonstrate technology that allows network/system administration personnel to monitor the internal network of a C2 enterprise, such as an Air Operations Center (AOC), providing status of machine availability, connectivity, software processes, and host health. Master Caution Panel (MCP) "bridges the gap" between the warfighter environment and the system administrators and engineers maintaining the IT resources used to plan and conduct AOC missions. The lead service is Air Force. The primary output and efficiency to be demonstrated is an improved situational awareness during real world operations.

FY 2008 Output: Completed evaluation reports based on the tests. Updated the training package based on the results of the demonstration. A final package of deliverables (training package, test plan, test reports, and System Security Authorization Agreement) completed for delivery at the end of the effort. The C2 MCP project was scheduled to conclude in FY 2008 but delays in securing a suitable Air Operations Center venue for final demonstration necessitated that a no-cost extension be granted.

FY 2009 Planned Output: Project expected to close-out 3Q FY 2009. Integration of the capability will be conducted through block upgrades to Air Operation Centers through FY 2010. Transition Manager is Air Force Research Lab.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Combined Visible IR Light Unit for the M2 .50 Caliber Weapon (SOCOM)	0.479			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: This comparative test project will evaluate a light unit for the M2 .50 caliber machine gun that combines a visible bright light with an infrared light, which will allow the warfighter to target enemy positions at night, without giving away their position. Primary Outputs and Efficiencies: Demonstrate that this light unit can be attached to crew-served weapons platforms and will provide enhanced recognition and identification of objects and targets out to a minimum of 700 meters; provide improved accuracy and greater lead on target efficiency. The RDT&E cost avoidance is \$2.000 million; manufacturing cost savings are estimated to be \$1.000 million; procurement cost avoidance is: \$1.600 million; operations and support cost avoidance is expected to be \$1.200 million. Completion date is anticipated 31 Nov 2009.

FY 2008 Output: Solicited candidate proposals and completed down selection of test item; negotiated contract for, and received test articles. Obtained a safety release; completed technical testing and published technical test report. Began early user assessment/operational testing.

FY 2009 Planned Output: Complete early user assessment/operational testing; publish test reports; prepare Milestone C decision packet; and complete DAC Closeout report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Cost Effective Light Aircraft Missile Protection (CELAMP) (Air Force)	2.479		

Outcome: Demonstrate an integration of the Quiet Eyes turret with AAQ-24(V) Directed Infrared Countermeasures (DIRCM) components that will provide infrared (IR) threat protection for sub-sonic platforms such as the A-10 and helicopters. The AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) system is not optimized to provide protection for small aircraft such as helicopters and fighters because of its cost, form, fit and weight. A light-weight, low-cost Infrared Countermeasures (IRCM) assembly (Quiet Eyes) was developed that leverages guidance components from the AIM-9X IR missile to provide highly responsive, all-aspect IR protection. The lead service is Air Force.

The primary outputs and efficiencies to be demonstrated are: (1) the ability of the Quiet Eyes turret to handle the higher power laser associated with the AAQ-24; and (2) demonstrate that the Quiet Eyes turret can successfully be integrated with the DIRCM processor, missile warning system and laser, resulting in a readily available lightweight IRCM jammer for Army and Navy helicopters while meeting the requirement for the next generation IRCM jammer for the Air Force.

FY 2008 Output: Quiet Eyes turret integrated with missile warning system, laser, processor and power supply demonstrated successfully in lab and at live fire demonstration at Tonopah Range.

FY 2009 Planned Output: The project has been handed off to the US Army Aircraft Countermeasures Improvement Program at Redstone Arsenal, Alabama, and is scheduled to be completed September 2009. Capability will transition to Army and Navy helicopters starting in 2011 and cargo aircraft for the Air Force in 2012. Transition manager is Air Force Aeronautical Systems Center.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Fiber Optic Gyro Rate Sensors for Combat Vehicles (Army)	0.979		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: This project will provide the Army with a family of rate sensors based on fiber optic technology for use in current vehicles. Rate sensors are the sending elements of the stabilization and fire control subsystems and hence are an integral part of the lethality of these vehicles. Traditional rate sensors are based on the use of mechanical gyros and moving parts which are subject to wear in the extreme harsh environments. Fiber optic gyros use deflection of light waves to determine rate of motion change, which provides a much more reliable and accurate sensor. This project takes advantage of this more reliable device in a form, fit and function replacement for combat vehicle platforms. The Army is the lead service, with Marine Corps support for integration to the Light Armored Vehicle (LAV) platform. Improvements: longer life, better performance, less stringent handling requirements, and lower cost. More reliable 5-6 times Mean Time Between Failure (MTBF) (No moving Parts). O&S Cost Avoidance: \$6.270 million (five years) / \$41.750 million (life). Procurement Cost Avoidance: \$2.270 million (five years) / \$15.000 (life). Research Development Test and Evaluation (RDTE) Cost Avoidance: \$1.300 million. Fielding Reduction: three plus years. Procurement Potential: 1400 units per year, 700 units first five years. Lifetime Potential is 33,400 rate sensors/ \$167.000 million.

FY 2008 Output: Conducted requirements Review for Bradley, M-1 Main Battle Tank, and LAV platforms; Design verification testing; Qualification plans and procedures for LAV and M1 vehicles; Test readiness review; and subassembly testing at White Sands Missile Range.

FY 2009 Planned Output: Conduct Integrated Project Team (IPT) meetings; Gun fire testing at government site; Engineering and Change Proposal (ECP)/Engineering and Change Review (ERR) development and release; Automated test equipment development and testing; M1 vehicle testing.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Improved Durability F100/F414 Exhaust Nozzle Divergent Seals (Air Force)	0.229		

Outcome: To demonstrate and document the flight characteristics of Ceramic Matrix Composite (CMC) Turbine Engine Exhaust Nozzle Divergent Seals. This documentation will occur through a Field Service Evaluation (FSE) flight program. The goal is to qualify the CMC divergent seals as preferred spares for the F100 engine family, as well as the F414 engine used in the US Navy F18 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) realization of significant acquisition cost savings annually for component replacement and; (2) a significant decrease in maintenance downtime of critical combat aircraft.

FY 2008 Output: Continued F100 flight test of CMC Divergent Seals at McEntire Joint National Guard Base and Mountain Home Air Force Base. Continued activities to deliver an Engineering Change Proposal to officially document F100 CMC divergent seals as fully flight certified. Negotiated with vendor and Oklahoma City Aerospace Logistics Center to establish the CMC Divergent Seal as a preferred spare for the F100 engine. Supported effort to redesign a faulty metal connector, which was the cause of delays in completing Engineering Source Approval and Engineering Change Request documents. For the F414, a two-times life ground test was initiated and completed to determine durability improvements and to generate required data to allow the program to proceed to test. Completed plan for test on an F/A-18E/F fighter.

FY 2009 Planned Output: Continue test of CMC seals on F/S-18E/F. Evaluate CMC seals and submit final report. The CMC Divergent Seal project is scheduled for completion in 3Q FY 2009. The transition managers are the F100 Augmenter Program Manager and Naval Air Systems Command.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Improved Performance Environmental Control System (Army)	0.747		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: This project will lower the risk of loss of life to wounded soldiers being transported from the point of injury to the casualty collection point by providing the Heavy Helicopter-60M Medical Evacuation (MEDEVAC) Helicopter with a fully mission capable Environmental Control System (ECS). It will provide the Army with a more robust and efficient heating and cooling environment within the HH-60M for the wounded soldiers. The ECS will be more efficient, affordable and reliable and weigh 30 lbs. less than the current ECS. The primary outputs and efficiencies of this program will be a fully qualified ECS for the HH-60M MEDEVAC aircraft. This includes: (1) qualification to the performance specification for the ECS, (2) qualification against the electromagnetic susceptibility requirements for the Army, (3) qualification against the environmental requirements of the Army, and (4) a full Interim Safety and Airworthiness Qualification statement for the ECS. Weight savings - 30 lbs., \$31.000 million in life cycle O&S costs savings, resolve obsolescence issues and increase cooling capacity.

FY 2008 Output: First test articles received in March 2008. Fit check of ECS accomplished on UH-60M Upgrade prototypes at West Palm Beach, FL, in March 2008. Test articles 1 and 2 began testing at Redstone Technical Test Center in September 2008. Sikorsky integration contract kick-off held July 2008.

FY 2009 Planned Output: Completion of component level testing March 2009. Integration Preliminary Design Review in January 2009. Installation Control Drawing Review in June 2009. Prototype integration of first ECS in August 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Improvements to Suite of Integrated Radio Frequency Countermeasures Systems (SOCOM)	0.729		

Outcome: This is a qualification test of technology advances in gallium arsenide (GaAs) high-frequency Radio Frequency (RF) Amplifier chips. These chips are commercially available and reduce bare component cost as well as reduce test and tuning time for Microwave Component Assemblies (MCA's) within the AN/ALQ-211 Suite of Integrated Radio Countermeasures (SIRFC) system, thereby preventing obsolescence of RF micro-chip assemblies and reducing the threat of diminishing material sources of supply. Primary Outputs and Efficiencies: Validate that commercially available GaAs RF chip component insertions to replace the current MCA's provide easier tuning during manufacturing and depot repair operations; demonstrate capacity to detect and jam the most modern RF threats to Special Operations Aviation (SOA); and validate reduction in unit/operations and sustainment cost with no necessity for skilled labor. Research Development Test and Evaluation (RDT&E) cost avoidance is estimated to be \$1.000 million; manufacturing cost avoidance is \$8.200 million procurement cost avoidance is \$8.280 million. Completion date is anticipated 31 March 2009.

FY 2008 Output: Completed Phase I concept demonstration of MCA #1; and began Phase II Integration, Vendor Demonstration, and Validation Testing.

FY 2009 Planned Output: Complete Phase II Integration, Vendor Demonstration, and Validation Testing; Finalize Procurement & Fielding Decision documentation based on test and evaluation; Submit Project Closeout Report end of 2Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Information Operations Range Battlespace Visualization (Army)	0.704		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: This project will provide the Joint Forces Command Information Operations (IO) Range with an effective near-term capability to provide range battlespace visualization through the integration of the Command and Control (C2) system as a common range enterprise service. The addition of this capability to the IO Range will dramatically improve the efficiency and effectiveness of the range and enable operationally realistic, net-centric, distributed IO event executions. This project will increase warfighter confidence by assuring predictable outcomes of IO capabilities, help create a well-trained career workforce, increase understanding of the IO battlespace, and accelerate maturing IO into a reliable warfighting capability. The Army is the lead service for this project. The primary output and efficiency is significantly accelerating warfighter confidence in IO capabilities by enabling direct observation of the IO Range battlespace during joint testing, training and exercising events conducted on the IO Range. The capability to observe the IO Range battlespace will provide a key enabling capability contribution to maturing IO into a core warfighting capability. Operations and Service Cost Avoidance: \$2.0 million. Procurement Cost Avoidance: \$12.0 million. Research Development Test and Evaluation (RDT&E) Cost Avoidance: \$25.0 million. Fielding Reduction: three plus years. Procurement Potential: 10 units. Lifetime Potential is 25 units.

FY 2009 Planned Output: Conduct a formal test and evaluation of the Command and Control software as an IO Range battlespace visualization system. Perform limited range sensor integration, testing, and demonstration. Provide final evaluation report to Joint Forces Command and Army for procurement and fielding decision.

FY 2010 Planned Output: Procure, integrate, and field as a common IO Range battlespace visualization service in support of Service, Agency, and Combatant Commander testing, training and exercising across the distributed IO Range enabled environments.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Low Cost Land Warrior Cable Connector System (Army)	0.476		

Outcome: Current Land Warrior (LW) connectors are machined out of stainless steel. Many failures are being experienced in the field. The purpose of this project is to look for alternative cable/connectors that are more reliable and cost effective without degrading current performance. The primary outputs and efficiencies will reduce manufacturing time and cost for connectors down to \$0.015 million/shell and cut manufacturing and connector lead time significantly. Current Land Warrior connectors are made with connector shells that are machined out of stainless steel that requires more than 15 minutes of machining time, costing approximately \$0.025 million/shell. Each Land Warrior ensemble needs ten cables, twenty cable connector shells plus twenty receptacle body connector shells, (40 shells total) costing approximately \$0.001 million per ensemble. The cost per ensemble could be reduced to \$0.600 million as a result of this project. Savings of \$0.400 million per ensemble are expected.

FY 2008 Output: Funds were not received until mid FY 2008, causing a 9-month schedule slip. During FY 2008, evaluated additional cable failures and determined feasible alternatives to test. Machined stainless steel (baseline) connectors shell were built and tested for suitability for LW application in July 2008.

FY 2009 Planned Output: Metal Injection Molded connectors will be manufactured during FY 2009 and compared to baseline connectors. The testing of these cable assemblies is scheduled for January 2009. Upon successful completion of the test, the Government will receive prototypes and technical information to further produce cost effective and reliable cables/connectors.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Low Plasticity Burnishings to F-100 Engine Airfoils (Air Force)	0.379		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: Demonstrate a metal stressing process on aircraft engine airfoils that will reduce Foreign Object Damage (FOD) to those components and thus reduce the substantial maintenance burden incurred due to unscheduled engine removals caused by foreign object damage. This can be accomplished, in a cost effective manner, by using the low plasticity burnishing (LPB) process to induce FOD mitigating deep compressive stresses in vulnerable engine blades. The estimated cost avoidance for the remaining service life of the selected engine system (F100-220 engine) is conservatively estimated at \$144 million. The lead service is Air Force. The primary outputs and efficiencies are: (1) the LPB-imparted stresses are sufficient to meet increased FOD tolerance requirements and do not impair performance or life of the blade, (2) no distortion of blade geometry and no cracking or other damage to blade, and (3) cost of the LPB process to be \$20 per blade, with a threshold of \$40.

FY 2008 Output: Continued refinement and delivery of solution; continued planning/design of on-floor capability at Air Logistics Center. The Low Plasticity Burnishing project was scheduled for completion 4QFY08 but because of delays in engine vendor test validation, project has been extended to 3Q FY 2009; existing FY 2008 funds were adequate to support this extension. The transition manager is jointly the Air Force Research Lab, Materials Directorate and the Oklahoma City Air Logistics Center (OC-ALC).

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Modular Advanced Composite Armor Kits for Sport Utility Vehicles (SUV) (SOCOM)	1.326		

Outcome: The project will test lightweight, advanced composite armor for SUVs and Special Operation Non-Standard Civilian Vehicles that can be easily installed and repaired in the field by non-technical personnel without the need for special tools or equipment. This technology will provide immediate force protection and increased survivability for Special Operation Forces prosecuting Overseas Contingency Operations. Primary Output and Efficiency: Demonstrate modular fit and design of armor kits that provide National Institute of Justice Level 3 protection from small arms and antipersonnel fragmentation mines. Research Development Test and Evaluation (RDT&E) cost avoidance is \$61.000 million; manufacturing cost avoidance is estimated to be \$3.750 million; production cost avoidance savings is anticipated to be \$3.300 million; and operations and support cost avoidance is \$.024 million. Completion date is anticipated 31 March 2009.

FY 2008 Output: Received test articles, conducted analysis and vehicle integration studies, completed evaluation and analysis of vendor data, completed Phase II technical/environmental testing and highly successful live-fire demonstration of vehicle w/blast protection; prepared test report. Project received additional funds for more kits and testing in-theater. Project Manager traveled to Theatre of Operations to demonstrate integration of Modular Armor Kits in vehicles and making measurements of other vehicle(s) to possibly equip with similar blast armor protection.

FY 2009 Planned Output: Complete Phase III form, fit, & function, safety and operational test and evaluation; finalize Milestone C procurement and fielding decision package based on test and evaluation; submit project closeout report 2Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Obstacle Avoidance SONAR for SOF Underwater Recon Vehicle (SOCOM)	0.579		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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Outcome: The proposed technology challenge will qualify an Obstacle Avoidance Sonar (OAS) in the unmanned Semi-Autonomous Hydrographic Reconnaissance Vehicle that is used by Naval Special Warfare for clandestine collection of sonar images and other very shallow water intelligence. The proposed OAS, a pre-planned product improvement, will allow the vehicle to "see" objects in its path and avoid them as required. Primary Outputs and Efficiencies: Demonstrate the capability of viewing horizontal and vertical planes, processing information, and providing course, altitude, and speed correction to the vehicle's guidance system to avoid obstacles. The Research Development Test and Evaluation (RDT&E) and manufacturing cost avoidance is \$0.500 million; and operation and support cost avoidance is: \$1.000 million. Completion date is anticipated 4Q FY 2009.

FY 2008 Output: Contracted for test articles; completed Phase I Performance Technical Testing qualifying critical capability to allow mission completion while providing for operations below water surface and prevent collisions and loss or repair of equipment; began Phase II operational testing.

FY 2009 Planned Output: Complete Phase II Operational Testing; complete test reports; conduct evaluation of combined Global Positioning System (GPS) and Sonar in new nose cone; obtain Milestone C production decision; submit project closeout report and exercise production options as applicable.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
RF Synthetic Instrument Signal Processing Engine Enhancement (RF-SISPEE) (Air Force)	0.599		

Outcome: To expedite repair of critical aircraft avionics and electronic attack jamming pods, measurably contributing to aircrew and aircraft survivability and weapons platform availability. This single synthetic instrument leverages the power of the latest technologies in Digital Signal Processing (DSP) techniques and simplified hardware to measure electrical signals more accurately than the many special purpose measurement instruments it replaces. The reduction in hardware resulting from the replacement of traditional measurement instruments with a single DSP-based system will increase the reliability of the test equipment and reduce the maintenance and calibration downtime of test equipment. The RF-SISPEE hardware modular and reconfigurable, allow component upgrades to match technological improvements. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are timely and accurate diagnoses of electronic attack pod failures, thus contributing to aircrew and aircraft survival.

FY 2008 Output: Demonstrated the portability of existing DSP software to Signal Processing Engine and completed integration of spectral analysis, power analysis, and signal generation software/firmware. Completed all Phase I activities. Transition Manager is Ogden Air Logistics Center.

FY 2009 Planned Output: Finalize sub-contract for Phase II activities with vendor; commence and complete Phase II with corresponding final report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Ruck-Sack Portable UAV Geo-Spatial Video Exploitation System for Falcon View (SOCOM)	0.614		

Outcome: This project is a qualification test of software capable of linking geo-spatially referenced (GPS referenced) video reconnaissance to the FalconView Mapping System: the principal Special Operations Forces mission planning system, used for threat analysis, route selection, assault and maneuver preparation. Primary Outputs and Efficiencies: Demonstrate enhanced situational awareness of the battlefield and provide a tactical advantage to commanders and their troops. The RDT&E cost avoidance is \$5.500 million; procurement cost avoidance is: \$0.427 million; operations and support cost avoidance is \$2.500 million. Completion date is anticipated 30 April 2009.

FY 2008 Output: Negotiated a procurement contract for test articles, obtained safety release, and conducted initial test planning and technical testing.

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FY 2009 Planned Output: Conduct analysis of vendor data; perform operational test user evaluation; complete test reports; obtain procurement decision; prepare project closeout report and exercise production options as applicable followed by project closeout 3Q FY2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
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Solar Power Adaptor/Multi-Purpose Processing Unit (SPA/MPPU) (Navy)	0.509		
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Outcome: A successful project will provide the United States Marine Corps (USMC) with the ability to integrate a self-sustaining power source for an average four-day mission profile instead of carrying the equivalent batteries. The SPA/MPPU can collect enough power during the day to operate communications and recharge batteries to continue operation through the night. A two-year project under sponsorship of the project and Marine Corps Systems Command, Program Manager Expeditionary Power Systems. Projected completion of all testing events is Calendar Year (CY) 2009. The primary outputs and efficiencies in the project are: (1) Weight reduction (carry fewer throw-away batteries); (2) Cost savings (fewer batteries to procure); (3) Adaptable to power other devices / emerging requirements; and (4) Research Development Test and Evaluation (RDT&E), Procurement and Operations & Support Life-Cycle Cost Avoidances of \$0.500 million, \$3.000 million, and \$5.000 million with a Return on Investment of 30:1.

FY 2008 Output: Finalized Source Selection and Planning documentation during 2Q FY 2008. Completed Test Article Contract Award, received Phase I Bid Samples, and initiated Phase I Limited Technical Evaluation and Source Selection Process during 3Q. Completed Phase I Limited Technical Evaluation and Source Selection, awarded contract for Phase II Test Article, and finalized Test Planning for Phase II testing during 4Q.

FY 2009 Planned Output: Receive Test Articles and initiate Phase II Qualification Testing during 1Q. Complete Phase II Qualification and Field/User Evaluation and initiate the Data Analysis & Evaluation by end of 2Q. Receive Technical Test Report, Milestone C Decision and Close-out Report by end of 3Q.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
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Super-Capacitor Power Source for Gun Launched Munitions (Army)	0.160		
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Outcome: To eliminate the need to "double set" the projectile at cold temperature due to slow battery rise time, eliminate the need to discard or fire the Excalibur projectile within fifteen days after the projectile has been initialized with Global Positioning System (GPS) data and allow the Excalibur to be field-initialized an indefinite number of times versus a maximum of twenty-times over a fifteen-day operating life period associated with the current battery. The lead service is Army. Efficiency: (1) high G artillery gun launch survivability; (2) 20 year storage life capability, (3) Data Hold Battery part replacement at approximately one third the unit cost, (4) Excalibur projectile integration, (5) Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) interoperability, (6) unlimited re-charging and projectile re-initialization cycles and (7) increased factory handling safety since supercapacitor power source approach eliminates a pyrotechnic battery primer. RDT&E Cost Savings: \$1.400 million. Operations and Support Cost Savings: \$1.100 million. Procurement Cost Savings: \$5.400 million. Fielding Reduction: 30 Fewer Rounds @ \$0.036 million ea. Procurement Potential: \$2.100 million. Return on investment (ROI) is 14 (\$0.8500 million / \$0.600 million).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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FY 2008 Output: Conducted component level, high G, rail gun survivability tests at hot and cold temperature extremes. Developed an artillery gun launch survivable packaging concept for the power source. Conducted EPIAFS electrical power transfer characterization testing over temperature. Conducted trade studies leading to a selected electrical design approach. Conduct power source subassembly high G survivability rail gun testing and electrical performance validation testing. Modify Excalibur Guidance and Navigation Unit (GNU) subsystem design to incorporate the new power source and conduct GNU / EPIAFS interoperability testing. Spiral Output - technical and electrical design features have already been incorporated into the Excalibur projectile for future insertion of the supercapacitor power source. Also, demonstration of interoperability between modified GNU containing supercapacitor power source and EPIAFS.

FY 2009 Planned Output: Manufacture two special GNUs that incorporate the new power source for electrical performance verification testing. Conduct a final operational demonstration of high G survivability by testing special GNUs in the rail gun and by live gun qualification testing of Excalibur projectiles containing the new power sources. Begin transition by identifying the needed Excalibur Technical Data Package (TDP) and production test equipment changes required for insertion of supercapacitor power source into the production build in the FY 2009 or FY 2010 timeframe. Transition manager is Program Manager Excalibur.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Unmanned Surface Vehicle (USV) Mine Neutralization (Navy)	0.379		

Outcome: A successful project will provide the Navy an effective, efficient, low-risk method for providing mine neutralization initially from a Manned Surface and ultimately from a Unmanned Surface Vehicle (USV). The primary outputs and efficiencies to be demonstrated in the project are: (1) this fleet Mine Neutralization (MN) System is a Military-off-the-Shelf (MOTS) mature and reliable system for the relocation, identification and disposal of sea mines and other ordnance found at sea; and (2) avoid Research Development Test & Evaluation (RDT&E), procurement and manufacturing cost of more than \$12.300 million.

FY 2008 Output: Completed fabrication of USV-MN system components. Completed in-water testing and developed contractor demonstration report. Completed training and system testing. Completed end user evaluation and environmental test. Completed Archerfish integration demonstration.

FY 2009 Planned Output: Develop and issue a close out-report and an in-depth test and evaluation report with recommended transition plan will be delivered to Explosive Ordnance Disposal and Office of Naval Research by end of the 2Q of FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Vaccine and Reagent Refrigeration System (VARRS) (Navy)	1.139		

Outcome: A successful project will provide the United States Marine Corps (USMC) a ruggedized Vaccine and Reagent Refrigeration System (VARRS), to replace deficient Health Service Support systems currently in the field. A two-year project under sponsorship of the project and Marine Corps Systems Command (MARCORSYSCOM), Chemical Biological Radiological Nuclear (CBRN) Medical. Projected completion of all testing events is CY 2009. The primary outputs and efficiencies in the project are: (1) Provide a fully ruggedized VARRS for storing and transporting life saving vaccines and reagents; (2) A 2000 percent increase in reliability over currently used commercial refrigeration systems; (3) The direct contribution to the survivability of patients; and (4) Research Development Test & Evaluation (RDT&E), Manufacturing, Procurement, and Operations & Support Life-Cycle Cost Avoidances of \$10.250 million, \$3.600 million, \$3.900 million and, \$5.784 million respectively with a Return on Investment of at least 26:1.

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FY 2008 Output: Initiated the Draft Statement of Work 1Q and received Vendor Test Data. Received DACP funds and submitted contract waiver request 2Q. Contract Waiver approved and submitted Request for Proposal at end of 3Q. During 4Q, continued working the contract effort in order to get awarded by end of 1Q FY 2009.

FY 2009 Planned Output: Complete Contract Award, initiate Test Planning along with fabrication of Test Articles during 1Q. Complete Fabrication of Test Articles and delivery, initiate Lab and Technical Testing by end of 2Q. Complete Technical Testing and Field User Evaluation by end of 3Q. Receive Technical Test Report, Milestone C Decision and Close-out Report by end of 4Q.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Armored Biological Integrated Detection System (BIDS) (Army)	0.582	2.449	

Outcome: This project is to qualify and integrate the S-788 Lightweight Multi-purpose Shelter version of BIDS currently on the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) onto the Armored Medium Tactical Vehicle (MTV) 5-Ton truck to provide increased biological defense on the battlefield. The best value sensor will upgrade the currently fielded Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS) assay-based identifiers to reduce biological warfare agent exposure by identifying bacteria, viruses, and toxins with 1-3 orders of magnitude increase in sensitivity within 15 minutes or less for the fielded sensors. The program is joint service with Army as the lead. The primary outputs and efficiencies to be demonstrated are as follows: (1) improved identification sensitivity performance in order to eliminate need for sensitivity waivers; (2) decreased operational and sustainment cost especially in the area of consumables, and (3) supports hardware commonality to include both JBPDS and JPS systems. Research Development Test & Evaluation (RDT&E) Cost Savings: \$14.000 million based on cost analogy from the original JBPDS from 1996 to when it entered Low Rate Initial Production (LRIP) in 2001. Operations and Support Cost Savings: \$4.000-6.000 million estimated, based on reduction of cost of consumables. Procurement Cost Savings: \$0-40 thousand per system. Fielding Reduction: 2 years. Procurement Potential: approximately 580 systems or \$24.000 million. Other Benefits: Joint Service and supports four Biological Detection Programs.

FY 2008 Output: A technology readiness evaluation (TRE) was conducted in FY 2007 of potential Commercial Off the Shelf (COTS) systems. Results of this TRE were presented in early 2QFY08. Initial FY 2008 funds were received in 2Q FY 2008. Contract was awarded to the top candidate sensor for integration into JPS systems and testing as an integrated system alongside a JPS baseline system against biological stimulant and interferent testing. Results indicate improved performance and logistics with the new sensor.

FY 2009 Planned Output: FY 2008 funds will continue to provide validation of the new sensor. Contract will be awarded to initiate background and operational testing at fielding sites of the newly integrated sensors in the JPS. In addition, developmental testing of the new sensor along with consumables will be initiated for transition into the JBPDS Build II contract as well as potential replacement sensor for field analytical lab. Transition manager is Joint Program Manager Biological Defense and completion date is expected December 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Assessment of Lightweight Weapon Mount (Navy)	2.499	2.569	

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Outcome: A successful project will provide the Department of the Navy with a commercially off-the-shelf (COTS) three-axis stabilized weapons mount. Such mounts have been developed for the Motion Picture industry that stabilize heavy cameras on turbulent moving platforms. This technology has received preliminary testing by Navy SEALs in live fire tests at Niland with a .50 cal, mounted on a High Mobility Multi-purpose Wheeled Vehicle (HMMWV), and held rounds in a tight grouping during off road testing. The overall comment from the SEALs was that this technology should be fielded to Iraq as soon as possible. The primary outputs and efficiencies to be demonstrated in the project are: (1) Provide the warfighter more accurate and lightweight crew-served mounts that are more cost-effective than current remote stabilized mounts; and (2) avoid Research Development Test & Evaluation (RDT&E), Operations and Support (O&S) and manufacturing costs of over \$37.000 million.

FY 2008 Output: Developed and issued Market Survey. Developed Contract Requirements for procuring first test articles and other additional test items. Procured Test Ammunitions. Developed Test Plan.

FY 2009 Planned Output: Planned to receive test articles 2Q FY 2009. Conduct Technical Testing and Field User Evaluation. Prepare Weapon System Explosive Safety Review Board (WSESRB) review and certification. Modify test unit to meet requirements. Complete Tech Testing. Receive Technical Test Report and Close-out Report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Collaborative Video Dissemination Service (Air Force)	0.879	0.949	

Outcome: Demonstrate and document a cost-effective, wide-area video exploitation and dissemination capability that improves the analytical value of unmanned aerial systems (UAS) video. Video backhaul systems provide a powerful, but manpower intensive, situational awareness capability to end users at supporting commands. The system as currently configured, however, does not provide the end user with the ability to record, analyze, fuse or otherwise manipulate the video streams, making the ingestion of the UAS intelligence extremely cumbersome. The Collaborative Video Dissemination Service (CVDS) will provide these capabilities. The lead Service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) transmission of National Geospatial-Intelligence Agency (NGA) compliant and properly formatted UAS telemetry information along with the UAS video that is backhauled for dissemination to deployed units and analysis centers, (2) a significant reduction in the manpower required to view and exploit the video by leveraging and sharing analyst notations from any of the exploitation sites, and (3) optimization of satellite bandwidth by opportunistically injecting staged content (video, imagery, intel) into the forward broadcast.

FY 2008 Output: Completed critical design review, hardware/software procurement, prototype integration and configuration, and test plan development. Initiated and completed test execution and validation and initiated activities to support prototype demonstration.

FY 2009 Planned Output: Complete prototype demonstration. Conduct post demonstration review. If review favorable, begin transition planning for field service evaluation and deployment. Complete close-out report. The transition manager is the Defense Information Systems Agency.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Enhanced Smart Triple Ejector Rack (Air Force)	2.079	1.149	

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Outcome: Demonstrate and document the flight characteristics and increased operational capability of a modified Triple Ejector Rack-9A (TER-9A). This modification will incorporate the MIL-STD-1760 Common Aircraft and Weapons Electrical Interface into the TER-9A, currently employed on the F-16 aircraft. This modification will increase F-16 smart weapons carriage from two Joint Direct Attack Munitions (JDAM) to six. The goal is to qualify the modified TER-9A for employment on Active and Air National Guard F-16 aircraft. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated are: (1) a modification of the TER-9A to a smart weapons capability while keeping its conventional capability; (2) a resulting reduced logistics footprint in the form of less maintenance man hours to re-configure aircraft for mission changes, and (3) increased aircraft availability as more bombs per aircraft can ultimately reduce aircraft required for the mission.

FY 2008 Output: Completed contract modification and statement of work. Acquired US Government-furnished test articles and mod kits. Initiated test and evaluation of item.

FY 2009 Planned Output: Continue test and evaluation. Complete close-out report. Initiate low-rate initial production, initial fielding, and begin field service evaluation followed by full-rate production. The transition managers are the 646 Aeronautical Support Squadron and Air Combatant Command.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
External Auxiliary Power Unit (U-EAPU) (Navy)	0.792	0.624	

Outcome: A successful project will provide the United States Marine Corps (USMC) with a U-EAPU that is capable of providing a sufficient secondary power source, effectively eliminating the reliance on using a vehicles primary engine or power system. The upgrades will increase operational effectiveness, lethality, survivability, and prevent incidents of fratricide. A two-year project under sponsorship of the Defense Acquisition Challenge Program (DACP) and Marine Corps Systems Command (MARCORSYSCOM), Program Manager Expeditionary Power Systems. Projected completion of all testing events is CY 2009. The primary outputs and efficiencies in the DACP are: (1) Supplemental power to a wide range of tactical vehicles to operate vehicle systems including communication suites, Improvised Explosive Device (IED) defeat equipment, fire control systems, M1A1 turret drive and Chemical Biological Radiological Nuclear (CBRN) protective systems; and (2) 50 percent reduction in noise intensity (acoustic signature), increased reliability and increased power output in similar sized units; (3) Research Development Test & Evaluation (RDT&E) and Operations & Support Life-Cycle Cost Avoidances of \$8.000 million and \$20.000 million with a Return on Investment of 37:1.

FY 2008 Output: Approved U-EAPU for the United States Marine Corps (USMC) M1A1, received the Research and Development funding, and initiated contract preparation during 2Q. Received Test Data at the end of 3Q.

FY 2009 Planned Output: Award Phase I Test Article Contract, Received Test Articles, and initiate Phase I test efforts during 1Q. Complete Phase I test, initiate down selection process and exercise contract options for Phase II by end of 2Qr. Receive Phase II Test Articles, initiate and complete Procurement testing and commence Field User Evaluation (FUE) by end of 3Q FY 2009. Complete FUE, Receive Technical Test Report, and provide Milestone C Decision along with the Close-out Report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
F-15 Digital Head Up Display (Air Force)	0.779	2.089	

Outcome: Demonstrate and document the flight characteristics and increased operational utility and reliability of a digital Head-up Display (HUD) over the analog display currently employed in the F-15 C/D aircraft. The goal is to qualify the item as a preferred spare for the F-15. The lead service is Air Force. The primary outputs and efficiencies are: (1) realization of significant net acquisition cost savings for item replacement and (2) a significant decrease in downtime due to HUD maintenance resulting from the replacement of the analog HUD with the more easily maintained digital HUD.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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FY 2008 Output: Contract award delayed because of contract processing. Completed 90 percent of activities required to award contract.

FY 2009 Planned Output: Leverage findings from F18 Hornet digital HUD demonstration and qualification to facilitate the completion of software and hardware component integration and installation of the unit into aircraft. Prepare for qualification activities in FY 2009. Provide two upgraded units to be used for flight demonstration and verification. Prepare for flight worthiness qualification. Finalize flight worthiness test final report. The F-15 digital HUD project is scheduled for completion in June 2009. The transition managers are the F-15 C/D system program office, Wright Patterson Air Force Base (AFB), OH, and the F-15 HUD item manager, Warner Robins Air Logistics Center, Warner Robins AFB, GA.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
High Density Swaging Machine (Navy)	0.579	1.099	

Outcome: Aircraft are recovered aboard aircraft carriers by the tailhook engaging the arresting gear cable, which connects to an engine below decks to absorb 50 million foot-pounds of energy. Both the cable and engine are Critical Safety Items-failure could likely mean loss of aircraft and life. During each cable replacement, sailors must attach a terminal to the cable aboard ship. The current process requires sailors to pour molten zinc at 1000 degrees Fahrenheit into a socket on a moving ship, exposing the sailors to toxic materials and noxious gases. The primary outputs and efficiencies to be demonstrated in the project are: (1) the High-Density Swaging Machine replaces the current process by pressing the terminal onto the cable. It will produce 2200 Tons of pressing force in a package small enough to be viable aboard ship, eliminating a risk of injury and long-term health to personnel; and (2) avoid Research Development and Testing, and Operations and Support costs worth over \$5.600 million.

FY 2008 Output: Designed and fabricated new terminal. Verified the swaging procedure (i.e. required pressing force over sections of terminal) by testing with real arresting gear cable and an off-the-shelf swaging machine. Produced non-destructive inspection procedures for the swaged cable-terminal bond. Completed ship installation package.

FY 2009 Planned Output: Complete hardware design of the swaging machine. Build and test the swaging machine by testing cables and swaged cable-terminal bonds on shipboard-representative arresting gear at Navy Lakehurst. Complete logistics package.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Integrated Shipboard Network System (ISNS) Storage Challenge (Navy)	0.317	0.747	

Outcome: This project will test new commercial off-the-shelf solutions to address end-of-life issues with its current network storage product. The incumbent vendors next-generation product will exceed the heat and power envelope for the system resulting in potentially millions of dollars of unnecessary rack redesign/upgrades. The challenge the Navy faces is to provide the network storage while staying within the heating and power specifications for our Navy ships afloat. The primary output and efficiencies to be demonstrated in the project are: (1) interoperability with existing system (plug and play); (2) increased performance (additional storage capacity); (3) meeting size, weight and power constraints; and (4) avoiding Research Development (RDT&E) and procurement costs of over \$7.500 million.

FY 2009 Planned Output: Test planning commenced 1Q FY 2009. Test article contracts are anticipated for award 2Q FY 2009. Performance testing and environmental testing planned for 3Q FY 2009.

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FY 2010 Planned Output: The technical test report and project close-out report are anticipated 1Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Warfighter Biological Agent Sensor (Army)	0.579	1.349	

Outcome: Competitive test and evaluation of automated commercial-off-the-shelf Biological Agent identification sensor for performance and cost advantages to support the warfighter in high threat areas. The sensor will upgrade the currently fielded Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS) assay-based identifiers to reduce biological warfare agent exposure by identifying bacteria, viruses and toxins with 1-3 orders of magnitude increase in sensitivity within 15 minutes or less for the fielded sensors. The primary outputs and efficiencies to be demonstrated are as follows: (1) Improved identification sensitivity performance in order to eliminate need for sensitivity waivers; (2) Decreased operational and sustainment cost especially in the area of consumables, and (3) Supported hardware commonality to include both JBPDS and JPS systems. Efficiency: Research Development (RDT&E) Cost Savings: \$14.000 million based on cost analogy from the original JBPDS from 1996 to when it entered Low Rate Initial Production (LRIP) in 2001. Operation and Support Life-Cycle cost savings: \$4.000 - \$6.000 million estimated based on reduction of cost of consumables. Procurement Cost Savings: \$0-0.040 million per system. Fielding Reduction: 2 years. Procurement Potential: approximately 580 systems or \$24.000 million. Other Benefits: Joint Service and supports four biological detection programs.

FY 2008 Output: Results of technology readiness evaluation presented in early 2Q FY 2008. Top candidate system(s) procured and began extensive validation to include live biological agent testing and interferent testing.

FY 2009 Planned Output: Live biological agent testing and interferent testing will continue and will be integrated as the identifier into the JPS, JBPDS, and possibly JBTDS systems. Integration will include product verification testing such as hardware Military Standard (MIL STD) 810 type testing. The integrated system will undergo biological simulant testing to verify integration did not affect performance. Once safety and integration testing is completed, operational and maintenance procedures and documentations will be adjusted for warfighter usage.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Mobile IP Interface to TDL (Navy)	0.779	0.849	

Outcome: This project is to demonstrate dynamic integration of Tactical Data Links (TDLs) via the US Fleet's tactical Internet Protocol (IP) backbone, which is provided by the Automated Digital Network System (ADNS). The lead service is the Navy. Two-year project sponsored by Office Secretary of Defense with completion date of end of CY 2009. The primary outputs and efficiencies to be demonstrated are: (1) capability for TDL platforms to automatically maintain communications with other TDL platforms when one platform migrates to a different TDL net; (2) a Commercial Off the Shelf (COTS) based system and network design for this purpose that is compatible with ADNS; (3) increased access for IP users to COMMS with TDL users (4) reduced communications down time as TDL platforms change nets; (5) reduced management burden for TDL nets used in tactical operations; and (6) Avoiding Research Development (RDT&E) and Operations and Support (O&S) costs of over \$9.500 million.

FY 2008 Output: Test article contract was awarded mid-4Q FY2008. TDL lab personnel began development of test plans and the lab set-up for test conduct and demonstration of dynamic TDL/IP integration functionality in lab.

FY 2009 Planned Output: Conduct joint field trial testing. Finalize configuration and conops documentation based on test results. Spiral output is a system based on COTS hardware, Cisco Routers, servers, Mobile IP Software that is integrated with the ADNS system.

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FY 2010 Planned Output: Complete transition to ADNS and integration into the ADNS configuration. TIPI completion date is Dec 2010. Prepare Technical Test Report and close-out report 1Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Omni-Directional Antenna for M156 MI-RAMS (Army)	0.829	0.899	

Outcome: A successful project will dramatically reduce time on target (mission survivability) and increase mission effectiveness through higher operational reliability in challenging target environments (underwater, urban, littoral, night operations, constrained target sets). Army Combat Engineers and Special Operations Forces (SOF) may emplace demolition charges and their Magneto Inductive Remote Activated Munitions System (MI-RAMS) receivers at any attitude or in any orientation (up, down, sideways) instead of vertically only. The lead service for this effort is the Army. The primary outputs and efficiencies to be demonstrated are as follows: (1) 3-Axis Antenna (All Orientation) Antenna for Army/SOF M39 and XM40 Magneto-Inductive Remote Activation Munition System (MI-RAMS); (2) Technical Data Package suitable for Full Rate Production and (3) Test data and user assessment to allow for a production decision.

FY 2008 Output: The contract award date was April 2008 for the manufacturing of the test hardware to support qualification tests. Conducted technical reviews in July 2008 and October 2008 between government and contractor to fully define electrical and operational/performance characteristics, review contractor progress. The test plan was reviewed by government and contractor personnel. The final test plan was completed and approved November 2008.

FY 2009 Planned Output: Funds will be used to support qualification testing of the items delivered in 3Q FY 2009 at Aberdeen, Maryland. Contractor personnel expertise will be utilized to support qualification and performance tests. To expedite testing and reduce test cost, user testing/evaluation will be conducted concurrently with the qualification tests. Field performance tests in unique environments such as tunnels and littoral zone will be done concurrently with qualification test. Based on performance test and user assessment, a Production Decision is anticipated during the 4Q FY 2009. The technical test report and project close-out report are anticipated at the end of 4Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Sensor Fusion Clip-On Night Vision Device for SOF Combat Assault Rifle (SOCOM)	0.614	0.604	

Outcome: This competitive test project will evaluate a Sensor Fusion Clip-on Night Vision Device (CNVD) for the Special Operations Forces (SOF) Combat Assault Rifle (SCAR) that integrates the technologies of both thermal and image intensification into one sight. This will provide the SOF warfighter a greater advantage when operating in austere environments. **Primary Outputs and Efficiencies:** Demonstrate significant improvement in target acquisition in rain, mist, smoke, vegetation, fog, dust, and low light. The Research Development (RDT&E) cost avoidance is \$7.000 million, manufacturing cost avoidance is \$13.000 million; procurement cost avoidance is \$.480 million; operations and support cost avoidance is expected to be \$2.800 million. Completion date is anticipated 31 January 2010.

FY 2008 Output: Received funding and developed performance specifications; obtained safety release; and conducted initial technical testing.

FY 2009 Planned Output: Conduct operational test/ user evaluation; complete test reports; obtain procurement decision; prepare project closeout report and exercise production options as applicable.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>

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Sinuous Spiral Antenna for the AN/ALQ-211 Electronic Warfare System (SOCOM)	0.619	0.869	
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Outcome: This project will be a qualification test and evaluation of a new detection antenna for the ALQ-211 Suite of Integrated Radio Frequency Countermeasures (SIRFC) currently being fielded on Special Operations aircraft. Primary Outputs and Efficiencies: Demonstrated that SIRFC can identify the location of radio frequency guided threats on the electronic warfare battlefield and significantly enhance the detection of poorly and ambiguously detected threats; provide polarization sensitivity allowing SIRFC to better correlate the received signal with its order of battle database, which leads to quicker identification and jamming; improve sensitivity provided by the sinuous spiral antenna ensuring threat detection in all aircraft attitudes; conversely, allows special operations aircraft to jam enemy radars in all aircraft attitudes; improve threat geo-location and enhances situational awareness. The Research Development Test and Evaluation (RDT&E) cost avoidance is \$10.000 million; procurement cost avoidance is: \$3.000 million. Completion date is anticipated 15 September 2009.

FY2008 Output: Conducted project planning and data review and analysis; began contract negotiations with expectation of contract award no later than 31 December 2008.

FY2009 Planned Output: Complete contract for test services; receive test articles; and conduct Phase I - concept demonstration; complete Phase II, implement, testing & validation; complete test reports; obtain Milestone C procurement decision; submit closeout report by 4Q FY 2009; and initiate production options as applicable.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Stand Alone Patient Simulator (Army)	1.379	0.299	

Outcome: A successful project will provide the DOD with a rugged field medical training capability that is applicable from point of injury to theater evacuation. The proposed system tests will prove the efficacy of using Stand Alone Patient Simulator (SAPS) technologies in various medical training scenarios including care under fire, tactical field care, Casualty Evacuation (CASEVAC)/ Medical Evacuation (MEDEVAC), forward surgical teams, hospital care, and Air Force Critical Care Air Transport (CCAT) training. The primary outputs and efficiencies to be demonstrated in the project test are: (1) ruggedness in field training exercises; (2) clinical accuracy at various levels of care; (3) flight safety certification for rotary wing aircraft for care in the air training; (4) documentation to support the establishment of a wireless patient simulator acquisition program; (5) avoiding RDT&E costs of \$3.000 million.

FY 2008 Output: Initial field tests conducted at Fort Bragg, NC and at Camp Bullis, TX. Failures in bone ruggedness and in skin ruggedness were noted and testing was suspended to address the failures. New skin formulations were developed and engineering evaluation of new bone materials is underway. Coordination for further user evaluations is underway. Projected test sites are Fort Lewis, Camp Lejeune, Camp Pendleton, a Navy hospital ship, and other military treatment facilities in Germany.

FY 2009 Output Planned: Reconfiguration of the test articles with the new bones and skins. Delivery to the long term test sites. Coordination with the Air Force for fixed wing flight safety certifications for use of the SAPS with CCAT training flights. User tests at Fort Lewis, Camp Lejeune, Camp Pendleton, and a Navy hospital ship. Conduct long term tests (more than 2 weeks) at Camp Lejeune, Camp Pendleton, Camp Bullis, and possibly with units deployed to Baghdad. Final test report will support the establishment of a program of record for wireless patient simulators.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Advanced IR Expendable Decoy (Air Force)		1.399	2.851

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Outcome: The evaluation and qualification of a new technology kinematic infrared (IR) decoy that protects Navy and Air Force aircraft (C-130, F-16, A-10) against current generation infrared guided missiles that have the discriminatory capability to reject conventional non-kinematic flares. Following the successful completion of the demonstration the final steps necessary for the full qualification of the flare and the preparation of a technical data package for procurement will be completed. The lead service is Air Force. The primary outputs and efficiencies to be demonstrated in this Defense Acquisition Challenge program are the successful demonstration of a newly-developed kinematic flare that protects medium signature aircraft against heat-seeking missiles that use kinematic techniques to discriminate against conventional non-kinematic flares. This flare is much more compact than existing kinematic flare designs. This compact design will allow more decoys to be carried per mission. The decoy also takes advantage of new decoy design technology which provides for better performance in a compact shape when compared to existing decoys.

FY 2009 Planned Output: Complete C-130 flight tests; finalize qualification test design for A-10 and F-16 flight tests; procure flares; complete computer modeling for C-130, A-10 and F-16; complete A-10 and F-16 flight tests; analyze data for qualification decision; make qualification decision; if qualified, finalize flare specification details.

FY 2010 Planned Output: Vendor begins manufacture of qualification flares (2066 required); complete all qualification and safety testing; analyze data in preparation for functional configuration audit; prepare technical orders; plan low-rate initial production; pass transition execution to Hill Air Force Base. The transition manager is 647 Aeronautical Systems Squadron, 77 Aeronautical Systems Group, Air Force Material Command.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Digital Solid State Combat Display (Navy)		0.949		

Outcome: A successful project will provide the Department of the Navy new digital solid-state displays. The new displays will improve the operational success of close-in weapon system operators to see the full range of enhancements the Phalanx Thermal Imager Sensor (PTI) can provide by helping discernment of targets. The primary outputs and efficiencies to be demonstrated are: (1) Provide significant improvement to the Close In Weapon System Total Cost of Ownership due to dramatic reliability and supportability improvements; (2) Deliver a ruggedized, lightweight, low power display that provides extremely high quality picture that is viewable in daylight conditions; and (3) avoid Research Development Test and Evaluation (RDT&E), Operations and Support (O&S) and procurement costs of over \$46.000 million.

FY 2009 Planned Output: Modify existing contract with Raytheon to add Combat Display Inc. (CDI) as a display supplier. Develop Test Plan and System Integration Process.

FY 2010 Planned Output: Test article systems integration. Complete systems testing and evaluation. Deliver test report and Close out.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Expeditionary Water Packaging System (EWPS) (Navy)		1.374	0.750	

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Outcome: A successful project will provide the United States Marine Corps with an expeditionary hydration solution that will address safety hazards associated with the distribution of unregulated bottled water to deployed forces, as well as the severe logistics burden incurred. The EWPS will supply the warfighter with a portable water packaging system for all phases of Marine Expeditionary Unit (MEU), Marine Expeditionary Battalion (MEB), and Marine Expeditionary Force (MEF) deployments. Projected completion of all testing events is CY 2010. The primary outputs and efficiencies to be demonstrated in the project are: (1) Provide the capability to package and distribute potable water for less than \$1.00 per liter; (2) Increase warfighter survivability by eliminating the threat of contamination to unregulated packaged water through sabotage or indirect means; (3) Increase operational flexibility of Marine forces deployed in expeditionary environments; and (4) avoid Procurement and Operations & Support Life-Cycle Cost of \$2.000 million, \$0.465 million, and \$65.000 million with a Return on Investment of 46:1.

FY 2009 Planned Output: Initiate contract preparation and award by end of 2Q. Complete contract award during 3Q. Receive Test Articles and initiate qualification testing by end of 4Q.

FY 2010 Planned Output: Continue testing and expect to complete Qualification testing and initiate Field User Evaluation (FUE) during 2Q. Complete FUE by end of 3Q. Receive Technical Test Report, Close-out Report, and Milestone C Decision by end of 4Q.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Handheld Total Fluid Condition Monitor (SOCOM)		0.849	

Outcome: This qualification test project will evaluate an affordable, easy to use, handheld monitor that provides real-time, on demand, point-of-use, fluid condition assessment for hydraulic & lubrication oils, equal to current technologies, while simultaneously increasing readiness & significantly reducing cost of testing. Vendor will provide test articles configured specifically for the Army's Special Operations aviation fleet. The FluidScan handheld oil analysis systems will be capable of meeting all oil evaluation and reporting requirements currently obtained via remote site testing. Primary Outputs and Efficiencies: Fluid scan usable by average soldier to obtain on-the-spot fluid condition assessment in less than 2 minutes; system meets environmental compliance; equivalence to oil analysis in Tech Manual 38-301-2 determining contamination based on viscosity, moisture/water content, flash point, acidity, dispersancy, insolubles/total solids and particles/debris per Technical Bulletin 43-0211. The Research Development Test and Evaluation (RDT&E) cost avoidance is \$8.500 million, procurement cost avoidance is \$4.000 million; operations and support cost avoidance is expected to be \$6.500 million. Completion date is anticipated 16 March 2010.

FY 2009 Planned Output: Conduct project planning, procure test articles, conduct Analysis/Study/Integration, analyze vendor test data, begin development testing and preparation of Technical Test Report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Improved Viper Strike PGM (SOCOM)		1.325	0.556

Outcome: Viper Strike is an operationally fielded lightweight, precision guided munition (PGM) using Global Positioning Satellite (GPS) aided navigation and a semi-active laser (SAL) seeker to attack targets. This qualification test project will evaluate subsystems that reduce the cost and procurement lead times of the SAL and GPS sub-systems, while maintaining or improving operational attack capability of the Viper Strike munition. Primary Outputs and Efficiencies: Demonstrate ASAL form fit and function replacement to existing SAL seeker; validate equal or greater SAL operational capability; demonstrate GPS receiver form-fit-function replacement to the existing GPS receiver; validate equal or greater GPS operational capability. The RDT&E cost avoidance is \$100.000 million, manufacturing cost avoidance is \$6.000 million; procurement cost avoidance is \$.0360 million; operations and support cost avoidance is expected to be \$.900 million. Completion is anticipated 10 March 2010.

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FY 2009 Planned Output: Conduct project planning, procure/contract for test articles, receive test articles, conduct analysis/study/integration, analyze vendor data, conduct initial technical testing, obtain safety release, prepare tech test report; begin performance of operator/user assessment/test.

FY 2010 Planned Output: Complete operator/user assessment test, prepare operator/user assessment test report, complete documentation for Milestone C decision packet; and prepare project closeout report 2QFY10.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Intelligent Power Management and Distribution System (IPMDS) (Army)		1.145	0.920

Outcome: A successful project will provide the Army with an IPMDS for the use in mobile power grids that will reduce training and fuel consumption, while providing a more reliable power grid with less downtime to mission critical equipment. Reports from Warfighters returning from Iraq and Afghanistan have reported issues with load balancing which leads to shutdown of power and potential harm to equipment. In order to sustain power availability to the Tactical Operations Centers, the Army will test non-developmental items from Custom Manufacturing & Engineering of Saint Petersburg, Florida, Lex Products, Inc. of Stamford, Connecticut and Rolls-Royce of Cheshire England. The intent is to transition to US Army PM-MEP (Mobile Electric Power) in FY 2010. The primary output and efficiencies will be demonstrated in the test are: (1) automatic electrical load balancing across the three phases of the generator set, (2) increased safety with indication of improper grounding and improper setup and, (3) avoid potential added Research Development Test and Evaluation (RDT&E) costs of \$5.000 million and avoid Operations and Support (O&S) costs of \$10.000 million.

FY 2009 Planned Output: Contract award and contract management. Travel to contractors to witness contractor testing. Test Article delivery is anticipated during the 2Q FY 2010.

FY 2010 Planned Output: Test Article delivery is anticipated during the 2Q FY 2010. Initial electrical and safety testing will be completed during the 2Q FY 2010 at Fort Belvoir, Virginia. The operational testing will be conducted and completed during the 3Q FY 2010. A Milestone C Decision is anticipated at the beginning of the 4Q FY 2010. The Technical Test Report and Project Close-out Report are anticipated during the 4Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
M1A1 Sniper Detection System (Navy)		0.849	0.392

Outcome: Provide the United States Marine Corps (USMC) with a Sniper Detection System (SDS) that will instantaneously detect and accurately locate an enemy sniper when a round has been fired. This new M1A1 capability will significantly improve the safety of tank crews and dismounted infantry. A two-year project under sponsorship of the project and Marine Corps Systems Command, Program Manager Tank Systems. Projected completion of all testing events is CY 2010. The primary outputs and efficiencies in the project are: (1) Drastically improve survivability and lethality of the M1A1 Tank; (2) Increase survivability and situational awareness of dismounted infantry; (3) Fulfill a crucial capability gap of the M1A1 Tank; and (4) avoid Research Development Test and Evaluation (RDT&E) cost of \$4.500 million with a Return on Investment of 13:1.

FY 2009 Planned Output: Initiate Contract Preparation during 1Q. Complete Contract Award and initiate Test Planning by end of 2Q. Commence the Fabrication of Test Articles during the 3Q. Complete Test Planning, initiate Lab Testing, and the Fabrication of the Test Articles by end of 4Q.

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<p>FY 2010 Planned Output: Receive Test Articles, initiate M1A1 Integration & User Interface, and complete Lab testing by end 1Q. Complete M1A1 Integration & User Interface, initiate Tactical Testing and M1A1 SDS Operational Testing, during 2Q. Complete Tactical Testing and Receive Test Report by 3Q. Provide Milestone C Decision and Closeout Report by end of 4Q.</p>				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Next Gen Night Vision Imaging Technology (SOCOM)			0.849	0.882
<p>Outcome: This comparative test project will evaluate cutting edge low-light camera technology for applications in next-generation Special Operations Forces (SOF) Ground Mobility Visual Augmentation Systems (GM-VAS). These image fusion components will be integrated into handheld, headworn and weapon mounted visual augmentation systems. The technology will exploit next-generation systems electronic images that will be processed for image enhancement, target identification and image fusion, which cannot be performed with analog image tubes. Primary Outputs and Efficiencies: Demonstrate improvement in resolution from the current state of 40 line pairs/millimeter(lp/mm) to a minimum of 50 lp/mm; reduce power consumption from 3 watts to 1.5 watts or less; increased low light sensitivity; increase the detection and identification ranges; provide for increased security. The Research Development Test and Evaluation (RDT&E) cost avoidance is \$1.000 million, procurement cost avoidance is \$.500 million. Completion date is anticipated 30 November 2010.</p> <p>FY 2009 Planned Output: Conduct Project Planning with established Integrated Planning Team (IPT), Coordinate with contracting official to procure/contract for test articles.</p> <p>FY 2010 Planned Output: Receive Test Articles, conduct initial technical testing, analyze vendor data, conduct combined developmental and operational testing, prepare test report, prepare documentation for Milestone C production decision and submit project Closeout Report 4Q FY 2010.</p>				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Portable Electrical Power Supply for Aeromedical Evacuation (PEPSAE) (Air Force)			0.864	
<p>Outcome: A stretcher mountable, lightweight hydrogen fuel cell for powering Aeromedical Evacuation (AE) equipment and AF medical team equipment. System will be capable of powering a suite of critical care medical equipment independent of aircraft power or external AC power, and radio systems used in AE ground support Unit Type Codes. The proposed system would incorporate a multi-functional power manager which would output fully regulated Direct Current (DC) power for use by the Critical Care Air Transport Team (CCATT) equipment. The system would additionally be able to have its output configured to power other applications as required. Additionally, the system will provide Alternating Current (AC) input, which would allow the PEPSAE to operate the CCATT equipment from grid power when available and make uninterrupted transition to hydrogen power when the grid power is no longer available. It will also incorporate a full power battery backup for up to 20 minutes. By operating on DC power, the four power supplies currently strapped to the stretcher to power each device can be eliminated, making a near neutral weight change for the equipment.</p> <p>FY 2009 Planned Output: A portable electrical power supply tested and qualified to meet the mobile power needs of Air Mobility Command AE and other AF mobile medical teams. The power system in this instance includes both the fuel cell based power module and the N-Stor360 hydrogen storage canisters.</p> <p>FY 2010 Planned Output: Program scheduled to be complete by 1Q FY 2010.</p>				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Shockwave Therapy for Traumatic Wounds and Burns of the Extremity (Army)			1.149	1.300

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Outcome: To evaluate shockwave therapy to determine if it meets combat casualty care requirements for complex wound treatment. Non-healing wounds are a major medical problem, impairing the quality of life to soldiers with acute traumatic wounds. In order to access the feasibility and safety of shockwave therapy and determine if shockwave therapy significantly improves wound healing over current standards of care, we will conduct definitive field testing of the extracorporeal shock wave therapy device from Tissue Regeneration Technologies, Woodstock, Georgia. The primary outputs and efficiencies to be demonstrated in the field testing are: (1) accelerate tissue repair in wounds; (2) reduce infection-related amputations and deformity; (3) minimize number of surgical interventions; (4) reduce hospital time and cost; (5) facilitate early rehabilitation. The key benefit to the warfighter is a non-invasive, painless treatment method to reduce bacterial load in wounds and facilitate blood vessel in-growth and soft tissue healing. Cost avoidance Research Development Test and Evaluation (RDT&E) cost of \$3.300 million; estimated Return on Investment of \$10.100 million.

FY 2009 Output: Conduct pre-study visit for initial study sites. Obtain study site Review Board approvals. Procure shockwave therapy device. Conduct study personnel training on study procedures and equipment. Begin Phase III clinical trial field testing.

FY 2010 Planned Output: Phase III clinical trial field testing and user evaluation will continue at study sites. Continue data safety monitoring and data collection on study subjects participating in Phase III clinical trial field testing. Interim data analysis will be conducted during the 2Q FY 2010. A Milestone C Decision is anticipated at the end of the 3Q FY 2010. The technical test report and final report are anticipated during the 4Q FY 2010. Final procurement of test article (DermaGold 180 MultiWave device) is anticipated during the 4Q FY 2010 and 1Q FY 2011, if field tests prove successful in order to support multi-specialty utilization throughout DoD Military Treatment Facilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Special Operations Forces (SOF) Forward Trauma Management Set (SOCOM)		0.327	1.489

Outcome: This comparative test project will evaluate a deployable Level III surgical care and trauma life support that will stabilize and sustain casualties with life saving trauma care for Special Operations Forces (SOF) operating in remote areas where casualty evacuation is not available. The forward trauma management set is a modular, resuscitative surgical intervention that is operationally adaptable vice operationally specific. User assessment testing will be completed in three worldwide operational areas: Central Command (CENTCOM), Africa Command (AFRICOM), Pacific Command (PACOM). Primary Outputs and Efficiencies: Resuscitative surgical care and trauma life support equal to tactical combat casualty care guidelines within capability of assigned SOF medical and non-medical personnel; self-contained rapidly deployable by C-130/C-17 aircraft; sustainable in remote harsh environments. Research Development (R&D) Cost Avoidance is expected to be \$2.100 million and Procurement Cost Avoidance at \$3.100 million; operational and support cost avoidance is \$71.460 million. Completion date is anticipated 31 December 2011.

FY 2009 Planned Output: Conduct project planning, develop concept for operations, contract for test articles.

FY 2010 Planned Output: Receive test articles, conduct Analysis/Study/Integration, conduct initial technical testing.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
SOT IR/FR Uniform Repair Patch Kit (Army)		0.786	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)	PROJECT P051
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Outcome: This project will provide the Army with a means of increasing the reliability and durability of the Fire Resistant Army Combat Uniform (FR ACU). Since the Department of Defense has put emphasis on durability and reliability of uniforms, the product office has made considerable advancements in extending the wear life of uniforms, but as a consumable product rips and tears will occur. The materials will provide abrasion resistance, strength, and durability to achieve a 120 day Threshold operational durability. The Integrated Patch kit (IPK) has been developed to meet the key performance parameters (KPP) of Reliability and Durability for combat uniforms. The IPK is designed to be fire resistant and infrared compatible with the base uniform. The patches can be tailored to size and the pressure-sensitive adhesive is designed to be easily applied to the uniform with little effort while extending the wear life up to 180 days. The primary outputs and efficiencies: Increased durability and wear life of the combat uniform, integration into other combat uniforms, maintaining the integrity of the fire resistant ensemble. Research Development Test and Evaluation (RDT&E) Cost Avoidance: \$ 1.300 million. The current cost of the FR ACU is \$150; the IPK can extend the wear life of a uniform by 33-50 percent, potentially reducing the Bases of Issue from 4 to 3.

FY 2009 Planned Output: A commercial off-the-shelf technology (COTS) has been identified. COTS system undergoing extensive validation and safety testing to include system level burn testing and durability testing. After completion of testing items will be procured for a limited user evaluation in a simulated operational environment.

FY 2010 Planned Output: submitting a close-out report in 2Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY 2010 Plans			19.722

FY 2010 Plan: The Defense Acquisition Challenge Program (DACP) will continue to fund testing activities on an estimated 8 continuing projects executing \$9.140 million. Remaining funding will be used to initiate new start DACP projects selected from the FY 2010 DACP proposal process. The FY 2010 final proposal selection process is scheduled for 4Q FY 2009.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

The Acquisition Strategy for DAC is as outlined in Title 10. DAC is to provide opportunities for the increased introduction of innovative and cost-saving technology in acquisition programs of the Department of Defense. DAC funding is used to fund testing of commercial and non-developmental items that could result in improvements in performance, affordability, manufacturability, or operational capability of an existing acquisition program. It is expected that should testing be successful, procurement using the respective current program funding would be used for acquisition.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
<u>Other:</u>				
	VARIOUS	VARIOUS	The majority of funding from this Program Element is forwarded directly to the Services and US Special Operations Command (USSOCOM) who manage all contracting and support requirements for the DACP projects identified above. Majority of FY 2010 funding is expected to be obligated and on contract by March 2010.	Mar 10

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
5 - System Development and Demonstration (SDD)			0604051D8Z - Defense Acquisition Challenge Program (DACP)							P051				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Various Projects	Various Projects		61863	28188	1-4Q	28409	1-4Q	28862	1-4Q					
Subtotal:			61863	28188		28409		28862						
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			61863	28188		28409		28862						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE												PROJECT														
5 - System Development and Demonstration (SDD)		0604051D8Z - Defense Acquisition Challenge Program (DACP)												P051														
Event Name	FY 08				FY 09				FY 10																			
	1	2	3	4	1	2	3	4	1	2	3	4																
FY 2010 Planned Output													DACP Output															
(1) FY 2010 Project Selections													▲ 1 FY 2010 Projects Identified															
(2) Funding Received (estimate)													▲ 2 Congressional Appropriation RDT&E															
(3) Procure test items													▲ 3 Field Level Procurement of Test Articles															
(4) DACP Project Test Plans Finalized													▲ 4 Test Plans Finalized and Implemented															
(5) DACP Project Testing													▲ 5 Project Testing															

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 5 - System Development and Demonstration (SDD)		PE NUMBER AND TITLE 0604051D8Z - Defense Acquisition Challenge Program (DACP)					PROJECT P051	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
FY 2010 Planned Output			1Q - 4Q					
FY 2010 Project Selections		4Q						
Funding Received (estimate)			1Q					
Procure test items			2Q					
DACP Project Test Plans Finalized			3Q - 4Q					
DACP Project Testing			3Q - 4Q					
DACP Final Testing and Close-out Reports								

Final selection of FY 2010 DACP new start projects was determined in September 2009. Field level contracts will be rapidly obligated through March 2009. Test plan implementation and product testing will be in full execution through April 2010. Final tests and close-out reports will continue through January 2011.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604161D8Z - Nuclear & Conventional Phys Sec Equip						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P163 Nuclear & Conventional Phys Sec Equip	3.162	4.331	7.628					

A. Mission Description and Budget Item Justification:

The purpose of this program is the system development and validation of conventional and nuclear physical security equipment (PSE) systems for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for continuing and evolving individual Service and joint PSE requirements that provide capability in the areas of force protection and tactical security equipment; robotic security systems integration; waterside security systems; explosive detection equipment; locks, safes and vaults; commercial-off-the-shelf (COTS) testing; and nuclear weapons security. A number of RDT&E efforts arising from PE 603161D8Z will transition to this PE for system demonstration and validation. The PSE program is organized so that representatives from the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) monitor, direct and prioritize potential and existing PSE programs through the auspices of the Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports: 1) the Army's PSE RDT&E efforts in the areas of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units; 2) the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion; 3) the Navy's PSE RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults; and 4) DTRA's PSE RDT&E efforts that enhance the security of Navy and Air Force nuclear assets. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604161D8Z - Nuclear & Conventional Phys Sec Equip
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	3.252	4.355	4.515	
Current BES/President's Budget (FY 2010)	3.162	4.331	7.628	
Total Adjustments	-0.090	-0.024	3.113	
Congressional Program Reductions				
Congressional Rescissions		-0.024		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.084			
Other	-0.006		3.113	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

The program performance metrics are established/approved through the DoD Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG and SPVC meetings. Performance variances are addressed and corrective action is implemented as necessary.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604161D8Z - Nuclear & Conventional Phys Sec Equip					PROJECT P163	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P163 Nuclear & Conventional Phys Sec Equip	3.162	4.331	7.628					

A. Mission Description and Budget Item Justification:

The purpose of this program is the system development and validation of conventional and nuclear physical security equipment (PSE) systems for all DoD components. This program supports the protection of tactical, fixed, and nuclear weapons systems, DoD personnel and DoD facilities. The funds are used to provide PSE RDT&E for continuing and evolving individual Service and joint PSE requirements that provide capability in the areas of force protection and tactical security equipment; robotic security systems integration; waterside security systems; explosive detection equipment; locks, safes and vaults; commercial-off-the-shelf (COTS) testing; and nuclear weapons security. A number of RDT&E efforts arising from PE 603161D8Z will transition to this PE for system demonstration and validation. The PSE program is organized so that representatives from the Army, Navy, Air Force, and Defense Threat Reduction Agency (DTRA) monitor, direct and prioritize potential and existing PSE programs through the auspices of the Physical Security Equipment Action Group (PSEAG) and the Security Policy Verification Committee (SPVC). With few exceptions, each Service sponsors RDT&E efforts for technologies and programs that have multi-service application. This program element supports: 1) the Army's PSE RDT&E efforts in the areas of Interior and Exterior Detection, Security Lighting, Security Barriers and Security Display Units; 2) the Air Force's PSE RDT&E effort in the areas of Exterior Detection/Surveillance, Entry Control, Delay/Denial, Tactical Systems and Airborne Intrusion; 3) the Navy's PSE RDT&E efforts in the areas of Waterside Security, Explosive Detection, and improved technology for Locks, Safes and Vaults; and 4) DTRA's PSE RDT&E efforts that enhance the security of Navy and Air Force nuclear assets. The program element also supports all four Services' identification and redesign of developmental, non-developmental, and commercial-off-the-shelf equipment to meet physical security requirements. Activities within this program will seek to reduce risk associated with integrating, fielding, and supporting the equipment once it becomes a part of the overall security system.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Robotic Security Systems Integration	1.100	1.000	3.000	

FY 2008 Accomplishments:

- Refurbished the Mobile Detection Assessment and Response System (MDARS) patrol unit vehicle (PUV).
- Continued MDARS modernization effort of Detection-On-The-Move, intrusion detection, and less than lethal capabilities.
- Began low rate initial production (LRIP) of the MDARS system.
- Deployed three vehicles to Hawthorne Weapons Army Depot (HWAD) for pilot fielding.
- Continued to integrate unmanned systems to meet physical security requirements.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Conduct MDARS product verification endurance testing at HWAD.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604161D8Z - Nuclear & Conventional Phys Sec Equip	PROJECT P163
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- Continue to integrate unmanned systems to meet physical security requirements.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2010 Plans:

- Continue MDARS product verification endurance testing at HWAD.
- Continue MDARS modernization effort to provide higher PUV speed and integrate MDARS with the Integrated Commercial Intrusion Detection System.
- Continue to integrate unmanned systems to meet physical security requirements.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Force Protection/Tactical Security Equipment	2.062	3.331	4.628	

FY 2008 Accomplishments:

- Continued the spiral development/modernization of the Battlefield Anti-Intrusion System (BAIS).
- Developed BAIS remote sensor activation/deactivation capability.
- Developed BAIS two-way communications capability by developing and testing a Handheld Monitor/Transceiver.
- Continued to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continued to manage sensor and assessment product developments and tests.
- Continued to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continued to test, develop, and integrate equipment to improve security and access to facilities.

FY 2009 Plans:

- Continue the spiral development/modernization of BAIS.
- Complete the development of BAIS sensor-to-sensor communications capability.
- Begin Production Qualification and Verification testing (PQ/VT) of the BAIS.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 5

0604161D8Z - Nuclear & Conventional Phys Sec Equip

P163

- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

FY 2010 Plans:

- Refine BAIS interfaces with C4ISR systems.
- Lower BAIS system and component costs.
- Improve BAIS performance by integrating global positioning system (GPS) capability.
- Begin system development and demonstration of the Light Kit, Motion Detector (LKMD).
- Begin system development and demonstration of the Tactical Video Surveillance System (TVSS).
- Complete the development of BAIS sensor-to-sensor communications capability.
- Begin Production Qualification and Verification testing (PQ/VT) of the BAIS.
- Continue to manage, develop, evaluate, and test Detection/Assessment/Delay/Denial products.
- Continue to manage sensor and assessment product developments and tests.
- Continue to prepare operational systems improvement plans; develop technology roadmaps, and update system architecture.
- Continue to test, develop, and integrate equipment to improve security and access to facilities.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 5

0604161D8Z - Nuclear & Conventional Phys Sec Equip

P163

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
5 - System Development and Demonstration (SDD)			0604161D8Z - Nuclear & Conventional Phys Sec Equip							P163				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
MDARS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	4330	1000	1-2Q	1000	1-2Q	1700	1-2Q					
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	3970					1700	1-2Q					
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL	2500											
LKMD		PM-FPS (USA), Ft. Belvoir, VA						600	1-2Q					
TVSS		PM-FPS (USA), Ft. Belvoir, VA						1300	1-2Q					
Subtotal:			10800	1000		1000		5300						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA		1062	1-2Q	1931	1-2Q	428	1-2Q					
MDARS	MIPR	PM-FPS (USA), Ft. Belvoir, VA		900				1000	1-2Q					
LKMD	MIPR	PM-FPS (USA), Ft. Belvoir, VA				1000								
TVSS	MIPR	PM-FPS (USA), Ft. Belvoir, VA												
Subtotal:				1962		2931		1428						
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
MDARS	MIPR	PM-FPS (USA), Ft.	320	100	1-2Q	200	1-2Q	300	1-2Q					

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT			
5 - System Development and Demonstration (SDD)			0604161D8Z - Nuclear & Conventional Phys Sec Equip								P163			
		Belvoir, VA												
BAIS	MIPR	PM-FPS (USA), Ft. Belvoir, VA	365	100	1-2Q	200	1-2Q	300	1-2Q					
TUVIS (Congressional Add)	MIPR	AFRL (USAF), Tyndall, AFB, FL	250											
LKMD	MIPR	PM-FPS (USA), Ft. Belvoir, VA						100	1-2Q					
TVSS	MIPR	PM-FPS (USA), Ft. Belvoir, VA						200	1-2Q					
Subtotal:			935	200		400		900						
Project Total Cost:			11735	3162		4331		7628						

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT
5 - System Development and Demonstration (SDD)		0604161D8Z - Nuclear & Conventional Phys Sec Equip						P163
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Began Full Rate Production of the MDARS system.	2Q - 4Q	1Q - 4Q	1Q - 4Q					
Refurbishment of MDARS.	2Q - 3Q							
MDARS product verification endurance testing.		1Q - 4Q	1Q - 2Q					
Conduct MDARS product verification endurance testing.	4Q	1Q						
Developed BAIS remote sensor activation/deactivation capability.		1Q						
Demo the integration of MDARs with Multi-Robot Operational Control Unit (MOCU).								
Refine BAIS (C4ISR interfaces, cost reduction, GPS interface).			1Q - 4Q					
Reduce BAIS size and weight.			3Q - 4Q					
SDD of LKMD.		1Q - 4Q	1Q - 4Q					
SDD of TVSS.		1Q - 4Q	1Q - 4Q					

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program						
	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
COST (\$ in Millions)								
P165 Prompt Global Strike Project	96.391	74.163	166.913					

A. Mission Description and Budget Item Justification:

This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements applications, and; systems design analyses necessary to establish and execute an integrated CPGS program. This Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for both Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to guidance systems, booster acquisition, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities. In FY10, funding for each of the individual service initiatives will be contingent upon their ability to execute and achieve satisfactory progress toward project goals as determined by OUSD/AT&L.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	99.364	117.572	170.000	
Current BES/President's Budget (FY 2010)	96.391	74.163	166.913	
Total Adjustments	-2.973	-43.409	-3.087	
Congressional Program Reductions		-43.000		
Congressional Recissions				
Congressional Increases		-0.409		
Reprogrammings				
SBIR/STTR Transfer	-2.782			
Adjustments to Budget Years	-0.191		-3.087	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
09	Development of new CPGS technologies (DARPA-AF)		Numbers of benchmarks attained			
09	Development of new CPGS technologies (AF-CSM)		Number of benchmarks attained			
09	Development of new CPGS technologies (Navy)		Number of benchmarks attained			
09	Development of new CPGS technologies (Army)		Number of benchmarks attained			

Comment:

Performance metrics for the CPGS program element will be measured against four benchmarks: 1) the ability to develop and implement a balanced and integrated technology program, and/or; 2) the ability to align the material solutions that result from the Prompt Global Strike (PGS) Analysis of Alternatives follow-on studies with technology priorities, and/or; 3) the ability to develop and implement experiments that address top technical risks, and/or; 4) the ability to develop technological solutions which offer a potential for cross-service and cross-concept use.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program				PROJECT P165	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P165 Prompt Global Strike Project	96.391	74.163	166.913				

A. Mission Description and Budget Item Justification:

This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements applications, and; systems design analyses necessary to establish and execute an integrated CPGS program. This Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for both Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to guidance systems, booster acquisition, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities. In FY10, funding for each of the individual service initiatives will be contingent upon their ability to execute and achieve satisfactory progress toward project goals as determined by OUSD/AT&L.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Hypersonic Glide Experiments and Concept Demonstration Development/Support	55.936	46.510	91.460

This sub-project describes efforts to develop technologies and assess capabilities that could potentially enable transformational changes in the arena of global, time critical strike. The goals of this sub-project are to: assess vehicle technologies, and; to exercise the ability to use a high-payload capacity system, which may demonstrate responsive, global reach against high value targets; assess the feasibility of producing an affordable solution to fill the CPGS capability gap. It will mature technologies that could lead to a system capable of global reach from Continental United States (CONUS) with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/maneuverability to avoid overflight issues; controlled stage drop over BOA, and; provides for in-flight target updates. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. Specific efforts include:

- Continue systems engineering/development and assembly, integration and test (AI&T) of two HTV-2 demonstration vehicles
- Continue flight test planning and support
- Integrate HTV-2 vehicles with Minotaur IV Lite Launch Vehicles and conduct two broad ocean area (BOA) impact flight test demonstrations
- Perform analysis of the military utility of vehicle performance with respect to thermal protection materials, aerodynamics and control surfaces, as well as navigation, guidance and control (NG&C)

FY09 activities will: complete initial design concept for the CSM Payload Delivery Vehicle to include thermal protection materials, guidance systems, mission planning, and command and control; complete qualification of a Minotaur launch vehicle for a CPGS mission analysis of launch system infrastructure requirements utilizing other ballistic missile propulsion programs, and; mature/demonstrate technologies associated with the high-speed dispense of conventional munitions.

FY2008 ACCOMPLISHMENTS:

- Successfully tested a prototype aeroshell under simulated terminal phase lateral load
- Completed assembly of Flight Aeroshell 1

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program	PROJECT P165
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- 71% completion of Flight Aeroshell 2
- NG&C flight software on track for 2009 delivery to AI&T
- AI&T Flight 1 & 2 primary structures, RF Cables, Flight 1 PATC, Flight 2 Control Box 100% complete
- Initial elements of CY10 demonstration acquisition strategy approved
- Major contracts in place to facilitate development of PDV, Minotaur Lite Boost vehicle, and KEP
- Aeroshell subcontract awarded
- Initial design concepts for PDV-compatible warhead completed
- PDV and KEP elements of Integrated Master Schedule complete
- Systems Requirements Review complete
- Range Safety Proposal Contract awarded
- Software destruct limit lines methodology, Test and Simulation SW development Plan, AI&T Flight Safety System Test Plan approved by range

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Alternative Re-Entry System/Warhead Engineering and Delivery Vehicle Options/Development	29.000	13.900	46.907

This sub-project will test and evaluate alternative re-entry systems and delivery vehicle options to include hypersonic glide body (HGB) and will assess the feasibility of producing an affordable alternate solution to fill the CPGS capability gap. It will mature technologies that could lead to a system capable of global reach from Continental United States (CONUS) with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/maneuverability to avoid overflight issues; and controlled stage drop over BOA. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. The current focus of this sub-project in FY09 and beyond is on the advanced hypersonic weapon effort. This effort researches hypersonic aerodynamics and control systems to enable a wide variety of future capabilities not currently available for rapid global response. The AHW, as a risk mitigation effort in support of the USAF CPGS project, develops and demonstrates the capability of a Hypersonic Glide Body (HGB) based Alternative Payload Delivery Vehicle (APDV) through a two-flight test schedule. Objectives are:

- Demonstrate the maturity of technologies related to thermal management, precise navigation and control, and in-flight communications with a hypersonic object.
- Demonstrate the successful delivery of an operationally useful payload weight at operational/intercontinental distances.
- Document the applicability of the proven AHW technologies to a family of CPGS concepts and implementations.
- Document the design of the AHW HGB to support future acquisition activities as required.
- Execute the initial integration and flight demonstration phase (Flight 1A) of the AHW including fabrication, assembly and integration of a single AHW flight vehicle in preparation for a flight test in FY11.

The AHW Hypersonic Glide Body (HGB) vehicle will be launched from the Pacific Missile Range Facility utilizing a Strategic Targets System (STARS) booster stack, separate from the launch vehicle, and fly a hypersonic glide trajectory to impact on the Reagan Test Site at Kwajalein Atoll, demonstrating flight systems integration, gathering thermal protection system performance data to assist in anchoring analytical models, and demonstrating advanced aerodynamic control features.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program	PROJECT P165
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FY2008 ACCOMPLISHMENTS

The AHW program has successfully completed the following reviews:

1. System Requirements Review
2. Integrated Baseline Review
3. Concept Design Review

Initial Range Command Council (RCC) tailoring in support of range operations has been completed. The program office has submitted the Program Introduction to the relevant ranges and has received the Reagan Test Site (RTS) Statement of Capability.

The program has completed an initial review of policy and treaty implications by the Compliance Review Group (CRG) and received certification to execute flight test 1A. This certification was pursued under the original program baseline.

Initial Instrumentation and Range Safety Group meetings have been held and the proposed Flight Termination System (FTS) for flight test 1A has been briefed.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Test Range Development	7.964	8.590	20.623

This sub-project will complete design, assembly and delivery of power/telemetry subsystems; assemble and integrate components to check command/control and verify range safety functions.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
OSD CPGS Studies	3.491	5.163	7.923

This sub-project supports emergent CPGS study efforts as directed by OSD/AT&L/PSA/Strategic Warfare. In addition, it also supports application of the Prompt Global Strike Analysis of Alternatives results, requirements development, CPGS basing alternatives, and measures to avoid misinterpretation on launch. Finally, it supports administrative activities associated with the execution of this PE.

Complete the study of strategic policy compliance to include CPGS basing alternatives and measures to avoid misinterpretation of intent; policy compliance, and operational requirements validation.

FY2008 ACCOMPLISHMENTS: To date this studies line has commissioned the Air Force to conduct a more detailed study of areas initially examined during the Joint PGS AOA to include:

Clarify if the AoA assumed the CONUS and Forward missiles were ballistic or endo-atmospheric.

Rework the cost analysis to reflect only the incremental cost of adding CPGS capability to sunk costs.

Actions required to add KEP ground and sled tests to the schedule.

List of range safety constraints and compatibility/impact on weaponized test objectives.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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0604165D8Z - Prompt Global Strike Program

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All areas will be reported on during 2nd and 3rd qtr FY09

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

This program element provides resources for technical studies, developments, and tests; project support; combatant requirements application; and systems design analyses necessary to establish and execute an integrated Prompt Global Strike (PGS) program. These efforts will produce: a five-year DoD plan for requirements, development and procurement; a DoD-wide coordinated assessment of kinetic non-nuclear system and operations concepts in a manner that supports planning, budgeting, and execution of further system concept development and procurement by the Services; resources for technical and operations projects and research, development and test and evaluation in such areas as PGS risk mitigation, strategic policy compliance, mission planning, reentry system thermal protection, advanced propulsion, advanced payload delivery and dispensing mechanisms, weapon system command and control, advanced non-nuclear warheads, modeling and simulation, launch system infrastructure, and other enabling capabilities that address emerging mission requirements.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
5 - System Development and Demonstration (SDD)			0604165D8Z - Prompt Global Strike Program							P165				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date			Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Glide Experiments and Concept Demonstration Development/Support	N/A	Peterson AFB, CO, Washington, DC		34000	1-4Q	51000	1-4Q	91460	1-4Q			Cont.	Cont.	
Alternative Reentry System/Warhead Engineering and Delivery Vehicle Options/Development	NA	Huntsville, AL, Washington, DC		23900	1-4Q		1-4Q	46907	1-4Q			Cont.	Cont.	
Test Range Development	NA	Washington, DC, Peterson AFB, CO, Huntsville, AL		35000	1-4Q	1000	1-4Q	20623	1-4Q			Cont.	Cont.	
OSD CPGS Studies	N/A	Washington, DC		3491	1-4Q	4163	1-4Q	7923	1-4Q			Cont.	Cont.	
Army SMDC Advanced Hypersonic Weapon (AHW)		Huntsville, AL			1-4Q	18000	1-4Q		1-4Q			Cont.	Cont.	
Subtotal:				96391		74163		166913				Cont.	Cont.	
Remarks:														
The CPGS Defense-Wide Account has distributed FY2009 funds via suballocations to the Services (USA, USAF) for technology development efforts. As of this date no Test and Evaluation activities have taken place.														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date			Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date			Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date			Cost To Complete	Total Cost	Target Value of Contract
Subtotal:														
Project Total Cost:				96391		74163		166913				Cont.	Cont.	

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604165D8Z - Prompt Global Strike Program

PROJECT
P165

Event Name	FY 08				FY 09				FY 10				FY 13				FY 14				FY 15			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(1) Navy Range Safety Demo					▲ ₁ FTS Test																			
(2) DARPA Flight Test, (3)					Demo Flt 1				▲ ₂ ▲ ₃ Demo Flt 2															
(4) Army AHW																								
(5) USAF CSM Demo Flt																								

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 5 - System Development and Demonstration (SDD)		PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program					PROJECT P165	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
Navy Range Safety Demo		3Q						
DARPA Flight Test		4Q						
			1Q					
Army AHW								
USAF CSM Demo Flt								

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P609 Joint Ground Robotics Enterprise (JGRE) SDD	6.710	5.694	5.127					

A. Mission Description and Budget Item Justification:

(U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies in Budget Activity 3 and 4 (PEs 0603711D8Z and 0603709D8Z) for technology transitions and transformations and closing warfighter requirement capability gaps. By exercising its oversight role through a technology advisory board, O-6 Council and Senior Steering Group (Flag level), Joint Ground Robotics applies this PE to enable coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE supports the effort to overcome technology barriers in thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The purpose is to further the development and fielding of a family of affordable and effective mobile ground robotic systems, develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. Through application of funds against the thrust areas of unmanned ground system technologies, in execution this PE supports the integration of technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedites technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded efforts will continue the delivery of responses to advanced technology needs directed at enhancing the warfighters' capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

All actions under this PE are within BA 5 and are identified with one project number.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	6.851	5.725	5.212	
Current BES/President's Budget (FY 2010)	6.710	5.694	5.127	
Total Adjustments	-0.141	-0.031	-0.085	
Congressional Program Reductions				
Congressional Rescissions		-0.031		
Congressional Increases				
Reprogrammings	-0.084			
SBIR/STTR Transfer	-0.044			
Other	-0.013		-0.085	

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010				
PE0603711D8Z (BA3) Joint Robotics Program/Autonomous Systems	18.734	9.198	9.110				
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	23.251	11.782	11.803				

Comment:

D. Acquisition Strategy:

The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives. JGR has established relationships with the several agencies to include the National Center for Defense Robotics (NCDR) and the Army's Rapid Equipping Force (REF) to support the rapid acquisition and evaluation of promising unmanned system technologies.

Funding is provided to Service lab partners and other developers to promote common technology solutions across platforms and Services. Execution of funding is against Technology Areas facilitated within technology projects which are selected and approved on an annual basis.

In FY08 JGRE began executing selected technology development efforts through a robotics technology consortium to broaden the research and development of robotic technologies with industry (traditional and non-traditional) and academia. Under the initiative, JGR will seek to deliberately mature specified emerging technologies to the point of demonstrating the technology in operationally relevant environments; improve the performance in reliability, range, speed, service life, and perception; achieve greater levels of tactical autonomy; develop and integrate platforms; and enable effective transition of the technology to programs of record via early consideration of life cycle support aspects (e.g., affordability, manufacturability, sustainment, training).

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

Metrics for the Joint Ground Robotics Enterprise (JGRE) funded RDT&E technology development efforts are articulated in individual project plans and overview quad charts used to form the basis of funding justification and program assessments. Technology development effort decisions are supported by the JGRE Technology Advisory Board (TAB). The TAB provides matrix assessments of technologies against capabilities to inform funding decisions, provides input to unmanned system (UMS) roadmaps and ensures technology transitions. In all document sets, project descriptions include task schedules with associated milestones against which progress toward objectives and goals are measured. At the level of the performer, efforts are tracked using project technical and management milestones that have been appropriately defined and agreed upon in the project plans prior to execution. At the enterprise level, the JGRE governance structure and process tracks deliverables and examines the potential transition of technologies from the R&D performer to DoD programs. The JGRE governance structure and process includes mid-year and end-of-year in progress reviews (IPR), annual funding justification and prioritization, technology assessments, a senior military Council and a Senior Steering Group (SSG) overview. These DoD participant reviews include cost, schedule and technical progress assessment against technology area and project milestones. Metric evaluations for the funded actions include, where appropriate, controlled trials, demonstrations, quasi-experimental evaluations, and direct/indirect analysis.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD					PROJECT P609	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P609 Joint Ground Robotics Enterprise (JGRE) SDD	6.710	5.694	5.127					

A. Mission Description and Budget Item Justification:

(U) This Program Element (PE) was established in response to Congressional guidance to consolidate DoD robotic programs on unmanned ground systems and related robotic technologies in order to increase focus of the Services' robotic programs on operational requirements. Technologies in the PE support the continued development of technologies in Budget Activity 3 and 4 (PEs 0603711D8Z and 0603709D8Z) for technology transitions and transformations and closing warfighter requirement capability gaps. By exercising its oversight role through a technology advisory board, O-6 Council and Senior Steering Group (Flag level), Joint Ground Robotics applies this PE to enable coordination between the Services and places emphasis on interoperability and commonality among unmanned ground systems. This PE supports the effort to overcome technology barriers in thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. The purpose is to further the development and fielding of a family of affordable and effective mobile ground robotic systems, develop and transition technologies necessary to meet evolving user requirements, and serve as a catalyst for insertion of robotic systems and technologies into the force structure. Through application of funds against the thrust areas of unmanned ground system technologies, in execution this PE supports the integration of technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedites technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded efforts will continue the delivery of responses to advanced technology needs directed at enhancing the warfighters' capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

All actions under this PE are within BA 5 and are identified with one project number.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
(U) Autonomous & Tactical Behaviors and (U) Collaborative Operations	2.398	1.557	1.703	

FY2008 Accomplishments:

- * Refined, maintained and completed final transition of documentation for Joint Architecture for Unmanned Systems (JAUS) reference architecture to an industry standard via the Society of Automotive Engineers (SAE).
- * Automated functions necessary for activating robotic response to sensor stimuli: increase sensor data fusion for system automation and platform autonomy and reduce operator reaction requirements.
- * Continued effort to develop a Detection on the Move - capability for employment of ground robots in the defensive battle space: increase system autonomy and effectiveness and enhance the system situational awareness (SA).
- * Demonstrated UGV technology maturity for teleoperation, semi-autonomous operation and full autonomous operations for logistics support allowing unmanned on- and off-road reconnaissance, unmanned medical evacuations, or unmanned perimeter patrolling operations.
- * Continued development of advanced mission planning and programming via Robotics for Agile Combat Support.
- * Continued development of autonomous unmanned ground robotic vehicles via the 2008 Intelligent Ground Vehicle Competition (IGVC).
- * Developed UAV autonomous positioning algorithms for optimizing extended communications between the operator, UAV, and multiple UGVs

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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- * Developed specifications for a standardized modeling and simulation (M&S) tool suite to support DoD robotics programs.
- * Demonstrated Convoy Active Safety Technologies (CAST).
- * Continued development of MDARS-Expeditionary as the Unmanned Ground Vehicle (UGV) for the Family of Rapid Response Equipment (FIRRE) - provide a semi-autonomous, high speed, cross-country, detection, persistent surveillance and response capability for forward deployed forces.
- * Initiated program to extend the JAUS world model message specification to incorporate true three dimensional information to enable UAV and UGV JAUS compliant collaborative capabilities.
- * Initiated research to extend the dynamic discovery of JAUS to support UAV and UGV collaborations.
- * Continued development and implementation of JAUS as a set of standardized messages suitable for controlling all types of unmanned systems, and becoming an Aerospace Standard of the Society of Automotive Engineers (SAE) via the 2008 Intelligent Ground Vehicle Competition (IGVC).
- * Integrated JAUS into Simulation Systems for experimentation/validation.
- * Completed design and off-board testing of automated Link Management System and precision UAS landings-refueling testing (JCTE).

FY 2009-2010 Plans: Support the development of vehicle onboard intelligence and tactical behaviors to allow the fielding of advanced autonomous unmanned systems. Baseline user identified mission scenarios to develop operational behaviors enabling unmanned operations within the conduct of mission tasks. Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the autonomy and functional capabilities of current and future robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Integrate communication, mission planning, interface technologies, and advanced intelligence capabilities to support collaborative operations between manned and unmanned systems. Develop and assess several strategies to enhance tele-operation of current UGVs and collaborative UAV teams. Collaborative and tactical behaviors include system convoying, teamed obstacle avoidance, area perception and relative position information sharing. Plans include:

- * Human Presence and Detection
- * Covert Tracking Robots/Sensors
- * Tactical Behaviors for EOD Robots - Cooperative Robotics
- * Battlefield Extraction - Assist Robot (BEAR)
- * Autonomous Robotics Countermining Experiment 2 (ARC2)
- * Convoy Active Safety Technologies (CAST)
- * Decon II - Joint Forward Area Automated Decontamination (JDAAD)
- * Mobile Robot Knowledge Base (MRKB)
- * Joint Collaborative Technology Experiment (JCTE)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
(U) Interoperability	1.057	0.810	0.822	

FY2008 Accomplishments:

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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- * Research and experimentation of unmanned vehicles, sensors, simulation, training, demonstration, and information distribution.
- * Developed autonomous collaborative behaviors between teamed unmanned ground robots in movement to observe, challenge and engage intruders into protected zones (JCTE).
- * Integrated BEAR robot with UGV TAGS-CX to demonstrate marsupial transport and collaborative operations.
- * BEAR - Continued design and development of stand-off casualty assessment and remote triage sensors.

FY 2009-2010 Plans: Promote and guide technology development to meet joint requirements and promote ground as well as air unmanned systems interoperability. Support the bridging of currently incompatible robots and controllers from various manufacturers, using different communications channels and hardware. Optimize best features of prior/ongoing research efforts into a maturing, standardized system that can be easily ported to robotic platforms used DoD-wide. Plans include:

- * Advanced Control Schemes for EOD Robotics/Tactical Behaviors for EOD Robots
- * Mobile Robot Knowledge Base (MRKB)
- * Convoy Active Safety Tech. (CAST)
- * Decon II - Joint Forward Area Automated Decontamination (JDAAD)
- * Integration of Access and Forced Entry Tools on Small UGVs
- * Joint Collaborative Technology Experiment (JCTE)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Man-Portable Unmanned Ground System Technologies and (U) Manipulation Technologies	2.015	1.982	1.681

- FY2008 Accomplishments:
- * Demonstrated semi-autonomous behaviors including guarded tele-operation, various forms of waypoint navigation with obstacle avoidance, and advanced visualization for teleportation techniques.
 - * Analysis of Alternatives (AoA) for a Next Generation EOD Robotic System (NGEODRS) acquisition program - operational effectiveness, suitability, and life-cycle cost of alternatives/Supported development, fielding and life cycle development of systems deployed for IED defeat missions.
 - * Testing on distributed communications system targeted for a Man-Portable Robotic System (MPRS).
 - * Provided support to multiple joint acquisition programs, technology development and assessment programs, and COTS spiral fielding and assessment programs to support current military operations.
 - * Continued concept exploration and demo and continuing technical and operational assessment for systems deployed.
 - * Integration of manipulator and commercially available tools to automate the five stages of vehicular decontamination.
 - * Continued development of manipulation and navigation maturity via the 2008 Intelligent Ground Vehicle Competition (IGVC).
 - * Continued development the Joint Architecture Unmanned System (JAUS) manipulator capability beyond core capabilities to advanced manipulation control support via Robotics for Agile Combat Support.
 - * Continued support for concept exploration and demo, and ongoing technical and operational assessment for systems deployed.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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- * Supported limited objective experiments, feasibility demonstrations, and concept exploration projects.
- * Continued robotic payload development.
- * Battlefield Extraction Assist Robot (BEAR) - Completed initial design and modeling of independently articulated lower tracked/wheeled limb combinations

FY 2009-2010 Plans: Increase the warfighter's capability by transferring and developing technologies that will have an immediate impact on the functional capabilities of man-portable robotic systems. Enable transitioning of technologies appropriate for small robots from the technology transfer program to fielded systems. Specific technologies include obstacle detection/obstacle avoidance (ODOA) and collaborative behaviors for small vehicles. Incorporate existing technologies into systems representative to those in use, demonstrate ease of robotic manipulation, support the development of mobile manipulation, expedite the transition and integration of corresponding robotic technologies to enhance the current fielded systems with more functionalities, autonomy and state-of-the-art behavior with interface methods from the RTD&E environment. Plans include:

- * Robotic EOD Technologies/Advanced Control Schemes for EOD Robotics/Tactical Behaviors for EOD Robots
- * Robotic for Airbase Operations and Support
- * Warfighter Experimentation/Exercises
- * Mobile Robot Knowledge Base (MRKB)
- * Integration of Access and Forced Entry Tools on Small UGVs
- * MTRS Continuous Improvement Program
- * Autonomous Robotic Countermining System Capability (ARCS2)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
(U) Technology Transition/Transformation	1.240	1.345	0.921

FY2008 Accomplishments:

- * Development and maintenance of the Robotic Systems Pool (RSP).
- * Provided robotic platforms and technical support to leverage several research and development projects across DoD and supportive of unmanned system developments, including: EOD robot range extension; Automatically Deployed Communication Relay (ADCR); RedOwl sniper detection; JAUS software integration; PackBot health-monitoring and ultracell fuel-cell for small unmanned ground vehicles.
- * Developed and implemented on-line knowledgebase/Web Portal for technology transfer.
- * Provided robotic platforms to support Warfighter Experimentation and Concept Development including: RDECOM-TARDEC Dismounted Controller Experimentation and Product Manager, Force Protection Systems (PM-FPS) Family of Integrated Rapid Response Equipment (FIRRE) demonstration.
- * Upgrades/improvements that focus on the capabilities of disruption, disposal, and render-safe procedures and nuclear, chemical, and biological agent detection.
- * Supported the conduct of research to determine the feasibility of implementing robotics in military logistic systems and to explore potential applications for exploiting agile robotic technologies in military logistics.
- * Supported continued development and implementation of JAUS compliance.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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* Continued technology development and transition efforts within industry and academia for sensors, artificial intelligence, processors, and human/computer interaction, and defining a strategy for early research and development.

* Provided support to joint acquisition programs, technology development and assessment programs, and COTS spiral fielding and assessment programs to support current military operations.

FY 2009-2010 Plans: Facilitate integration of and ensure the ultimate transfer or transformation of technologies to ongoing programs. Exploit the best features of past and ongoing efforts while supporting the development of technologies that have low risk to transition. Technologies of interest include: Interface Technologies (Human Robot Interaction), Autonomous Operations (Information Fusion, Perception, and Navigation), Autonomous Technologies (Positioning), and Platform Technologies. Plans include:

- * Mobile Robot Knowledge Base (MRKB)
- * COCOM Ground Robotics Initiatives
- * Battlefield Extraction Assist Robot (BEAR)
- * Autonomous Robotic Countermining System Capability (ARCS2)
- * Man Transportable Robotic System (MTRS)
- * Convoy Active Safety Technologies (CAST)
- * Warfighter Experimentation/Exercises

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010					
PE 0603711D8Z (BA3) Joint Robotics/Autonomous Systems	18.734	9.198	9.230					
PE 0603709D8Z (BA4) Joint Ground Robotics Enterprise (JGRE) ACD&P	23.251	11.782	11.955					

Comment:

D. Acquisition Strategy:

The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives. JGR has established relationships with the several agencies to include the National Center for Defense Robotics (NCDR) and the Army's Rapid Equipping Force (REF) to support the rapid acquisition and evaluation of promising unmanned system technologies.

Funding is provided to Service lab partners and other developers to promote common technology solutions across platforms and Services. Execution of funding is against Technology Areas facilitated within technology projects which are selected and approved on an annual basis.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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In FY08 JGRE began executing selected technology development efforts through a robotics technology consortium to broaden the research and development of robotic technologies with industry (traditional and non-traditional) and academia. Under the initiative, JGR will seek to deliberately mature specified emerging technologies to the point of demonstrating the technology in operationally relevant environments; improve the performance in reliability, range, speed, service life, and perception; achieve greater levels of tactical autonomy; develop and integrate platforms; and enable effective transition of the technology to programs of record via early consideration of life cycle support aspects (e.g., affordability, manufacturability, sustainment, training).

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
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Labs/Centers:

	AFRL	Tyndall AFB, FL	Program Management, Systems Engineering. Air Force Research Laboratory (AFRL)	
	AMRDEC	Redstone Arsenal, AL	Program Management, Systems Engineering. U.S. Army Aviation and Missile Research, Engineering, and Development Center (AMRDEC).	
	JM&L LCMC	Picatinny Arsenal, NJ	Contract Management. U.S. Army Joint Munitions and Lethality Life Cycle Management Command (JM&L LCMC)	
	NAVEODTECH	Indian Head, MD	OSD Executive Agent for joint service EOD R&D. Program Management. Naval Explosive Ordnance Disposal Technology Division (NAVEODTECH).	
	SPAWAR	San Diego, CA	Program Management, Systems Engineering. Space and Naval Warfare [SPAWAR] Systems Center, San Diego (SSC San Diego).	
	TARDEC	Detroit, MI	Program Management, Systems Engineering. U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC)	

Contractors:

	National Center for Defense Robotics (NCDR)	Pittsburg, PA	Program Management.	
	L-3 Communications	Reston, VA	JGRE program management support.	
	BAH	Herndon, VA	JGRE program management support.Booz Allen Hamilton (BAH)	

Other:

	Program Manager Force Protection Systems (PM FPS)	Fort Belvoir, VA	Program Management, Systems Engineering.	
	Robotic Systems Joint Project Office (RS JPO)	Redstone Arsenal, AL	Joint Office Project Management.	

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY 5 - System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD	PROJECT P609
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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Ground Robotics Enterprise				5853	1-4Q	4844	1-4Q	4251	1-4Q					
Subtotal:				5853		4844		4251						

Remarks:
 Funding value captures the total committed and obligated or planned for obligation across the PE. The Joint Ground Robotics Enterprise (JGRE) utilizes several contracting and management strategies to achieve its objectives: technology development against the thrust areas of unmanned ground system technologies to include Autonomous & Tactical Behaviors, Manipulation Technologies, Collaborative Operations, Interoperability, Man-portable Unmanned Ground System Technologies, and Technology Transition/Transformation. This PE supports the need to integrate technologies into representative models or prototype systems in a high fidelity and realistic operating environment and expedite technology transition from the laboratory to operational use. Emphasis is on proving component and subsystem maturity prior to integration in major and complex systems and may involve risk reduction initiatives. Within this PE, funded projects will continue the delivery of responses to advanced technology needs directed at enhancing the warfighter's capabilities identified during concept development, operational assessments and field feedback of current unmanned systems.

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Group Robotics Enterprise Support			12146		1-4Q									
Subtotal:			12146											

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Joint Group Robotics Enterprise Support			2196	857	1-4Q	850	1-4Q	876	1-4Q					
Subtotal:			2196	857		850		876						

Project Total Cost:														
	14342	6710		5694		5127								

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604709D8Z - Joint Robotics EMD

PROJECT
P609

Event Name	FY 08				FY 09				FY 10																						
	1	2	3	4	1	2	3	4	1	2	3	4																			
(1) Advanced EOD Robot System	▲ ₁ Tech Demo																														
(2) Convoy Active Safety Technology (CAST)					▲ ₂ Tech Demo																										
(3) Autonomous Range Clearance	▲ ₃ Warfighter Experiment																														
(4) Robotic Firefighting	▲ ₄ Tech Demo																														
(5) Human Presence and Detection	▲ ₅ Tech Demo																														
(6) VANE					▲ ₆ Tech Demo																										
(7) JGRE Support					▲ ₇ Office Support																										

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 5 - System Development and Demonstration (SDD)		PE NUMBER AND TITLE 0604709D8Z - Joint Robotics EMD					PROJECT P609	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Advanced EOD Robot System	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Convoy Active Safety Technology (CAST)		1Q - 4Q	1Q - 4Q					
Autonomous Range Clearance	1Q - 4Q	1Q - 4Q						
Robotic Firefighting	1Q - 4Q	1Q - 4Q						
Human Presence and Detection	1Q - 4Q	1Q - 4Q	1Q - 4Q					
VANE		1Q - 4Q	1Q - 4Q					
JGRE Support		1Q - 4Q	1Q					

Events are based on multiple technology development efforts, executed within and across program elements and technology development priorities established through the JGRE Technology Advisory Board (TAB), O-6 Council and Senior Steering Group (SSG) in support of Joint Capability Areas (JCA). All efforts under this PE are identified with one project number.

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #5			R-1 Item Nomenclature: Common Joint Tactical Information/0604771D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Link-16 Tactical Data Link (TDL) Transformation/P771	16.893	20.487	20.633	
A. Mission Description and Budget Item Justification:				
<p>The P771 program was developed to transform Joint Tactical Data Links (TDLs) (primarily the J Series of Link 16, Link 22, and Variable Message Format) to comply with the Department's Net-Centric vision. The program encapsulates the Department's needs for joint and combined network-enabled capabilities for TDLs and is being expanded to assess and transform Joint data link communications, such as the Common Data Link (CDL) and Weapons Data Link (WDL), to the net centric standards, and to ensure interoperability and seamless integration with Joint communication systems. The implementation of these network capabilities into the data link environment will enhance the decision cycle between sensor-to-shooter; providing information-superiority, shared environment that enhances combat power by increasing speed of command, higher tempo of operations, greater lethality, increased survivability, and self synchronization. This transformation must balance the needs of the warfighters with the requirements for net centric operations</p> <p>The funds provided by this budget request were used in 2008 to ensure the timely implementation of net centric goals by incorporating these network-enabling capabilities into the Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP). JTMP will be used as a baseline to support the Office of the Secretary of Defense (OSD) in further analyzing the validated warfighter capability needs for the primary TDL and CDL communications across the full set of mission areas in order to identify possible solutions to meet those needs across the range of Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) and assess the synchronization planning and capability delivery management activities to support Joint Net-Centric Operations Capability Portfolio Management (NC CPM) objectives. In addition the funds were used to develop an integrated joint airborne architecture, ensuring adherence to the GIG enterprise wide technical baseline. The NC CPM will work with the Services in this near-term analysis and with our Allied/Coalition partners in future analysis to validate the acquisitions and fielding plans needed for net centric goals. In addition, an Advanced Tactical Data Link (ATDL) study was started to evaluate various data link alternatives for contested and anti access airspace scenarios. This study will be expanded in 2009 and 2010 to incorporate the CDL family of tactical Intelligence, Surveillance, and Reconnaissance (ISR) communications systems, including the systems used with Unmanned Aerial Systems (UAS) and the Integrated Broadcast Service (IBS), with subsequent year's funding being used to expand the JTMP to include the results of this CDL analysis. A final area to be added will be to ensure that TDLs systems are properly integrated with the other systems part of the net centric architecture, utilizing a new analysis tool the Integrated Master Schedule (IMS).</p> <p>The program will continue to fund the development of spectrum management and oversight for the TDES systems, and to fund for the coordination of these development efforts with the Services and other US and International spectrum management agencies, including the Federal Aviation Agency (FAA) and National Telecommunications and Information Administration (NTIA), to obtain Link 16 spectrum certification. In addition, funding will continue to be used to support the Defense Information System's Agency's (DISA) and</p>				

Services' interoperable improvement efforts and processes in the development of common standards and protocols. This effort includes initiating the Joint Interoperability Enhancement Process (IEP) that allows operators, engineers, and program managers to verify capabilities and identify issues in a design with Joint /Allied units prior to system fielding, or with fielded systems to identify required systems changes for systems upgrade planning. DISA and Joint Forces Combatant Command (JFCOM) will lead the effort to transform the current standards and interoperability management tools to a common set of Joint network-enabled standards to ensure adherence to the GIG enterprise wide technical baseline and for implementation of future TDES capabilities. These joint standards, protocols, and processes will be used for implementation and testing to ensure the TDES capabilities are synchronized with the development and integration timelines of other planned network-enabled Global Information Grid (GIG) initiatives. The threats to the networking waveforms and the Joint NET CENTRIC migration will also be looked at in cooperation with the Intelligence agencies.

Plans and Accomplishments:

FY 2008 Accomplishments (\$16.893 million):

- Published update of the 2006 Joint Tactical Data Enterprise Services (TDES) Migration Plan (JTMP).
- Continued analysis to evaluate expanded data link communities and their migration to Net Centric capabilities and incorporation into the JTMP.
 - Initiated analysis on the warfighter capabilities of the Common Data Link (CDL) and Integrated Broadcast Service (IBS) environments to guide the net-centric migration of Joint Intelligence, Surveillance, and Reconnaissance (ISR) and Joint Intelligence assets.
 - Initiated work to incorporate Low Observable (LO) data links to address stealth platform requirements for Low Probability of Intercept (LPI) and Low Probability of Exploitation (LPE) digital communications.
- Continued implementation and maintenance of the Interoperability Enhancement Process (IEP) with DISA and JFCOM to:
 - Populate and maintain a database of Joint TDES implementations and interoperability assessments
 - Identify Net Centric Operations and Warfare (NCOW) program dependencies and integration points
 - Ensure adherence to the GIG enterprise-wide technical baseline
- Continued to assist PEO C4I&S in executing the:
 - Agreements and conditions identified in the Department of Transportation (DoT) and DoD for sharing the 960 to 1215 Mhz band
 - Link 16 Spectrum Support Certification.
 - Technical assistance for the JTIDS/MIDS Multinational Working Group and other international forums related to ensuring spectrum access.
- Finalized the airborne architecture portion of the Net Centric integrated architecture.
- Initiated the integration of Allied participants in the JTMP starting with the United Kingdom (UK).
- OSD/NII and the NC CPM continued to provide technical oversight, planning, and coordination of Joint TDL interoperability and transformation initiatives.

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- Acted as Joint TDL subject matter experts and participate with GIG End-to-End Systems engineering and related teams.
 - Continued development of standards, protocols, and processes for implementation and testing end-to-end across programs.
 - Continued to assess cross-program engineering, integration, and test for NC CPM programs and capabilities.
 - Continued risk assessments and Independent Program Assessments for NC CPM programs.
 - Provided insight into operationally driven, technical functionalities needed to meet tactical data exchange requirements within a critical and/or warfighting environment.
 - Conducted analytic evaluations to define and plan implementation of key technologies to include tactical information integration and configuration management.
 - Established policy, provided oversight, and developed net-centric architectures to will address the wireless and mobility aspects of IP.
 - Developed policy-based network management preferred system concept and methodology for enterprise situational awareness.
 - Evaluated need for a common interface and visualization approach for autonomous Programs of Record in development.
 - Developed an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG.
 - Developed NC CPM integrated architecture and Capability Delivery Plan.
 - Supported incorporation of data links into the Functional Solution Analyses (FSA) and FSA Integration efforts.
 - Developed Strategic Plan and Portfolio Guidance for APOM 09 and POM10.
 - Ensured the Single Integrated Air Picture (SIAP), the airborne portion of the Joint Theater Air and Missile Defense (JTAMD) Family of Systems, progressed from being net-ready to being net-centric, in compliance with the NCOW and as part of the 2008 NC CPM focus on airborne networking.
 - Provided oversight to ensure the stages of development across the Integrated Air and Missile Defense (IAMMD) roadmap encompass the tenets of the NC CPM and incorporate or interoperate with net-centric data links.
 - Provided oversight for the integration of relevant architectures under development by IAMMD stakeholders.
 - Ensured the accuracy and completeness of the operations concept which will serve as an integrating structure for future IAMMD operational architectures.
 - Employed, capability development, and force integration efforts across air, cruise, and ballistic missile defense for theaters, regions, and the homeland
 - Participated in a group effort to consider the transport path/program milestones and way ahead the Department should consider providing the sensor net defined for the 2020+ time period. Radio requirements would be defined and compared to potential Joint Tactical Radio System (JTRS) data link capabilities, determining if and when JTRS will be able to provide the needed capability. Additionally, the group addressed the information path requirements necessary to perform the Air and Missile Defense mission
 - Conducted a detailed study on new airborne tactical data links including
 - Initiated a new integrated Master Schedule tool that synchronized the numerous data links with platforms and other net centric systems.
- Initiated work on an information transport FSA to assess the gaps in current programs between current and planned data links with the

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remaining portions of the communication systems.

FY 2009 Planned (\$20.487 million):

- **Provide Spectrum Support and oversight for TDES systems:** provide department subject matter experts and representation to the national and international spectrum management boards and forums to ensure Joint Service access to TDES related spectrum to support worldwide operations and training in CONUS
- **Data Link Migration Engineering Support:** 1) Update 2008 TDES migration plan 2) develop modeling and simulation capability to support data link technical and operational capability assessments including integration to other components of the GIG
- **Net centric engineering:** 1) conduct an ad hoc mobile net-centric tactical wireless architecture for 2020 that interfaces with the GIG 2) provide oversight, and develop net-centric architectures which will address the wireless and mobility aspects of IP 3) update Information FSA analysis
- **GIG Engineering support:** Develop analytic tools to support technical and performance analysis including 1) develop initial modeling and simulation tool for integrating TDES with other related network systems 2) update capabilities of the Integrated Master Schedule (IMS) tool for new systems and host on classified and unclassified server platforms 3) analyze NC CPM programs and capabilities dependencies and integration points and ensure their adherence to the GIG enterprise-wide technical architecture.
- **Joint Initiatives: Advanced Tactical Data Link (ATDL) Study Update to include:** Refined analysis of total aerial network requirements, such as system throughput, single user throughput, performance in a jammed environment, latency, LPI/LPD/LPJ performance for non-low observable aircraft, and security. Incorporating: Helicopters, ship /maritime MCO, phase 4 operations (stabilization and reconstruction), and platforms with Link 16 & ATDL into the study; and initiate MIDS JTRS/JTRS migration plan
- **Joint TDES migration: Technical oversight, planning and coordination of joint TDL interoperability and transformation including:** 1) Provide insight of functionalities needed for technical data exchange in a warfighting environment; 2) Plan implementation of tactical information integration and configuration management; 3) Develop an ad hoc mobile net-centric tactical wireless architecture for 2020; 4) Assess data link interoperability and networking performance; 5) Lead Joint team with OSD, JCS, DISA, Services, and Agencies for TDES migration to include integration and synchronization of NC CPM capabilities; 6) lead TDES teams to address transformation of the tactical gateways and the JINTACCS process
- **Joint and international engineering:** 1) development of approved standards, protocols and processes incorporating end-to-end implementation and testing across programs 2) Conduct risk assessments and independent Program Assessments for NC Portfolio programs and capabilities 3) conduct risk assessments and Independent Program Assessments for NC programs
- **Joint Interoperability Enhancement Process (IEP):** 1) conduct analytic evaluations to define and plan implementation of TDES technologies to include tactical information integration and configuration management 2) develop policy-based network management preferred system concept and methodology for enterprise situational awareness.

FY 2010 Planned (\$20.633 million):

- **Provide Spectrum Support and oversight for TDES systems:** Conduct analysis and provide department subject matter experts

- and representation to the national and international spectrum management boards and forums to ensure Joint Service access to TDES related spectrum to support worldwide operations and training in CONUS
- **Data Link Migration engineering support:** Publish updated TDES migration plan including ISR and starting to include selected Allied data ; using modeling and simulation capability to assess advanced data link capability integration to the GIG and the technical capabilities and the operational benefits of the advanced technologies.
 - **Net Centric Engineering:** Maintain and update the necessary Net Centric architecture and capabilities definition documents to include the following: 1) update Net Centric Architectures to reflect developments in waveform, enterprise services, information assurance, and knowledge management; 2) verify proper network performance; 3) Complete Information FSA analysis;
 - **GIG Engineering support:** Develop analytic tools to support technical and performance analysis including :1) model and simulate various conflict scenarios, showing network performance when transitioning between aerial layer of network and GIG; 2)Update the Integrated Master Schedule (IMS) to reflect all airborne both manned and UAV) platforms as well as ground mobile networking systems; 3) conduct analysis to verify development of CDL backbone and information assurance (IA) technologies permit rapid, seamless exchange of large ISR data files from tactical edge to GIG and back.
 - **Joint Initiatives: Advanced Tactical Data Link (ATDL) Study Update to include:** review of DoD efforts to develop an ATDL with greater system throughput and performance in a jammed environment; determination of which aircraft and other platforms should receive an ATDL; need for gateways to allow aircraft on ATDL to remain interoperable with aircraft that won't be upgraded, within DoD and among allies
 - **Joint TDES migration: Technical oversight, planning and coordination of joint TDL interoperability and transformation including:** Continue the expansion of the TDES community participation including the incorporation of the ISR and UAS communities, and beginning the incorporation of Allied partners into the JTMP process.
 - **Joint and International engineering:** model and simulate various coalition aerial networks, showing interoperability between US aircraft in US-only nets, US aircraft in coalition networks, and allied aircraft ; oversight for the integration of data link interoperability with Allied systems
 - **Joint Interoperability Enhancement Process (IEP):** Update policy, directives and the analytic evaluation process to define and plan : 1) implementation of TDES technologies to include tactical information integration and configuration management 2) continues to develop policy-based network management preferred system concept and methodology for enterprise situational awareness
- B. Program Change Summary:**
- | | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|----------------------------------|----------------|----------------|----------------|
| Previous Presidents Budget | 16.384 | 20.600 | 20.757 |
| Current Presidents Budget | 16.893 | 20.487 | 20.633 |
| Total Adjustments | 0.509 | -0.113 | -0.124 |
| Congressional program reductions | | | |

Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustment	0.509	-0.113	-0.124
PBD Adjustment			

Program Change Explanation:
 FY 2008: Program adjustment.
 FY 2009: Program adjustment.
 FY 2010: Program adjustment.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: In executing JTDL tasking, existing cost-plus contracts will be utilized. -driven reviews in support of the JCIDS, acquisition and PPBE processes

E. Performance Metrics:

Enterprise-Wide Alignment: Accelerate DoD information age transformation to increase the effectiveness and efficiency of the warfighting, intelligence and business missions.

Measures:

- Timely development and issuance of policy and guidance
- Instantiation of enterprise-wide system engineering for the Global Information Grid across DoD

Portfolio Management: Provide for the timely and effective delivery of key Net-Centric capabilities through portfolio management

Measures:

- Key milestones completed for major net-centric acquisitions
- Number of major systems through net-centric event

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Exhibit R-3, RDT&E Project Cost Analysis										Date: May 2009		
Appropriation/Budget Activity RDT&E DW/BA #5				Program Element: 0604771D8Z					Project Name and Number: Link-16 Tactical Data Link (TDL) Transformation - P771			
Cost Categories (\$ in millions)	Contract Method & Type	Perform ing Activity & Locatio n	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Product Development												
Spectrum Support	Various	Various	13.357	1.618	Various	2.029	Various	1.200	Various	Continuing	Continuing	Continuing
Data Link Migration Engineering Support	Various	Various	14.227					0.450			14.727	
Net-Centric Engineering	Various	Various	3.770	3.070	Various	3.839	Various	5.490	Various	Continuing	Continuing	Continuing
GIG Engineering Support	Various	Various	9.530	5.686	Various	7.130	Various	4.500	Various	Continuing	Continuing	Continuing
Enhancements	Various	Various	0.918									
JICO Toolset (JSS) Development	Various	Various	0.529									
Joint Initiatives	Various	Various	3.099	2.221	Various	2.533	Various	2.550	Various	Continuing	Continuing	Continuing
Joint TDES Migration and Technology Insertion Plan	Various	Various	6.812	1.927	Various	2.321	Various	2.888	Various	Continuing	Continuing	Continuing
Joint and International Engineering	Various	Various	4.726	1.372	Various	1.495	Various	0.700	Various	Continuing	Continuing	Continuing
Joint Interoperability Enhancement Process	Various	Various	0.477	0.999	Various	1.140	Various	2.855	Various	Continuing	Continuing	Continuing
Weapons Networks	Various	Various	1.403									
Web Enabled Cockpit	Various	Various	1.280									
Subtotal Product Development			60.128	16.893		20.487		20.633				
Total Cost			60.128	16.893		20.487		20.633				

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA 05	PE NUMBER AND TITLE: 0605027D8Z - OUSD(C) IT Development Initiatives								
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate						
Total PE	0	0	5.000						
IT Development Initiatives	0	0	5.000						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Office of the Under Secretary of Defense Comptroller OUSD(C) is required to prepare and execute balanced and defensible budgets that support the mission of the Department of Defense (DoD). Most of the OUSD(C)'s current budgeting, executing and management systems and processes were designed primarily to provide budgetary accounting information, analysis and reports required by the Congress and the Office of Management and Budget. These systems are antiquated and do not satisfy current financial management structure information requirements recently imposed on all federal government agencies nor meet the Department's management needs for providing timely information in support of more cost effective decisions. Also, these systems are unable to adapt to emerging DoD initiatives for business transformation. This program supports all initiatives, projects and efforts to modernize enhance and integrate current and emerging budget, execution and management capabilities and processes to accomplish the OUSD(C) mission.

B. Program Change Summary:

	FY 2008	FY 2009	FY 2010
Previous President's Budget	0	0	5.000
Current BES/President's Budget FY 2010	0	0	5.000
Total Adjustments	0	0	0
Congressional Program Reductions	0	0	0
Congressional Increases	0	0	0
Reprogrammings	0	0	0
SBIR/STTR Transfer	0	0	0
Other	0	0	0
	0	0	0

C. Accomplishments/Planned Program:

-Next Generation Comptroller System – Plan, develop, test and evaluate the system components (i.e. unified database, expert systems, data mediation, enterprise service bus, applications, services) and supportability requirements in modernizing the budget formulation, execution and reporting capabilities for the Comptroller. Activities will include, but not be limited to, the preparation all documentation required for Clinger-Cohen Compliance and acquisition regulations, developing requests for proposals, and oversight and management of contracts and deliverables.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0605140D8Z - Trusted Foundry						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P014 Trusted Foundry	41.306	42.127	41.223					

A. Mission Description and Budget Item Justification:

The Department of Defense (DoD) and National Security Agency (NSA) require uninterrupted access to state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. Under DODI 5200.39, integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, or sabotaged parts. Worldwide competition from foreign state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and manufacturing facilities with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of electronics components and integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors

This program will provide DoD and NSA with the trusted state-of-the-art microelectronics design and manufacturing capabilities necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a competitive cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit components. NSA, in their role of Trusted Access Program Office, has successfully looked to commercial sources to satisfy their requirements. Access to trusted suppliers is imperative to ongoing and future DoD/NSA systems, and most centrally, Trusted Foundry access is absolutely necessary to meet secure communication and cryptographic needs.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0605140D8Z - Trusted Foundry
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2008/2009)	43.227	42.360	41.953
Current BES/President's Budget (FY 2010)	41.306	42.127	41.223
Total Adjustments	-1.921	-0.233	-0.730
Congressional Program Reductions			
Congressional Rescissions		-0.233	
Congressional Increases			
Reprogrammings	-0.627		
SBIR/STTR Transfer	-1.211		
Other	-0.083		-0.730

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

NSA has negotiated a "take or pay" contract with IBM with 10 one year options. IBM will provide custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of behind the leading edge production processes will be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

All delivered parts will meet IBM standard commercial requirements. Any damaged or misprocessed parts will be replaced free of charge.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0605140D8Z - Trusted Foundry					PROJECT P014	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P014 Trusted Foundry	41.306	42.127	41.223					

A. Mission Description and Budget Item Justification:

The Department of Defense (DoD) and National Security Agency (NSA) require uninterrupted access to state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. Under DODI 5200.39, integrated circuits in critical/essential systems need to be procured from trusted sources in order to avoid counterfeit, tampered, or sabotaged parts. Worldwide competition from foreign state-subsidized manufacturing facilities (foundries) is making fabless semiconductor companies the norm in the U.S. Sophisticated off-shore design and manufacturing facilities with engineering labor rates vastly less than engineering rates in the U.S. have resulted in outsourcing of electronics components and integrated circuits. These trends threaten the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic on-shore suppliers and reducing access to trusted fabrication sources for advanced technology. These trends are of acute concern to the defense and intelligence community. Secure communications and cryptographic applications depend heavily upon high performance semiconductors where a generation of improvement can translate into a significant force multiplier and capability advantage. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

This program will provide DoD and NSA with the trusted state-of-the-art microelectronics design and manufacturing capabilities necessary to meet the performance and delivery needs of their customers while at the same time providing the Services with a competitive cadre of trusted suppliers that will meet the needs of their mission critical/essential systems for trusted integrated circuit components. NSA, in their role of Trusted Access Program Office, has successfully looked to commercial sources to satisfy their requirements. Access to trusted suppliers is imperative to ongoing and future DoD/NSA systems, and most centrally, Trusted Foundry access is absolutely necessary to meet secure communication and cryptographic needs.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Trusted Foundry	41.306	42.127	41.223	

FY2008 Accomplishments: The Trusted Foundry produced over 21,000 parts for more than 70 DoD/NSA customers (i.e., programs and contractors). The Trusted Foundry Program initiated 17 multi-project wafer lots that supported 340 different integrated circuit designs for subsequent use in Service, DoD agency, and NSA programs. Five of those lots were implemented with leading-edge manufacturing technology of 90nm and the program pioneered foundry access for trusted applications. Additional trusted circuit cores were converted for use in the Trusted Foundry process flow and were made available to defense customers. Established a trusted design activity for use by DoD and NSA programs.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 5

0605140D8Z - Trusted Foundry

P014

FY2009 Plans: Additional integrated circuits will be provided for the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going programs. Additional effort will be taken to further increase the number of trusted suppliers available to defense programs and to continue the acquisition of trusted process Intellectual Property (IP) and device codes to assure the long term availability of trusted parts. Application Specific Integrated Circuit (ASIC) design support software, hardware and Intellectual Property will be obtained to support up to eight ASIC designs at the leading-edge and for critical designs that require the accumulated knowledge of the IBM design team to implement in the most efficient manner for defense programs. New product developments will occur, as well as production parts for some of the prototype developments sponsored the previous year(s). Special processing equipment for low volume manufacture will be developed. Maintenance support for the facility infrastructure equipment to ascertain trust levels is also planned. Facility modifications necessary to clear the 300mm IBM fabrication facility in East Fishkill, New York will be completed. Program will begin to focus on 32/22nm technology generation, integration of specialized process technologies for military users and the complete supply chain for implementation in a trusted environment, including design, manufacturing, integration and test, and packaging.

FY2010 Plans: Additional integrated circuits will be provided for the U.S. Army, U.S. Navy, U.S. Air Force, and DARPA to satisfy new and on-going programs. ASIC Design efforts will be initiated to encompass leading-edge designs in state-of-art process technologies for military applications and the trusted design flow will be enhanced for defense designers. New circuit cores will be converted to trusted format and made available to the .customers (programs, contractors, etc.) that use the Trusted Foundry. New equipment paradigms will be furthered for low volume but leading-edge processes. New process paradigms for trusted fabrication technologies will be furthered and evaluated for implementation. New commercial and noncommercial sources and methodologies for trusted components and services within the complete supply chain will be developed and made available to the defense community.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

NSA has negotiated a long-term flexible contract with IBM that can be extended with options and new tasks. IBM will provide design activities and custom integrated circuit parts in production and prototype quantities to meet DoD/NSA leading edge integrated circuit needs. Additional suppliers of "behind the leading edge" production processes will also be developed and accredited by DMEA and NSA as Trusted Suppliers to provide program managers the flexibility to acquire trusted parts appropriate to the minimum risk and vulnerability of their particular system needs. Process Intellectual Property will be obtained from trusted suppliers to assure the availability of parts over the long term. Special equipment will be developed to support the flexible manufacture of initially small quantities of trusted integrated circuits that are built by exploiting these innovative scalable process technologies for small lots.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
5 - System Development and Demonstration (SDD)			0605140D8Z - Trusted Foundry							P014				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Aggregate volume purchase agreements	MIPR	NSA	135655	25724	1-4Q	27546	1-4Q							
Form partnerships w/suppliers to improve the infrastructure for trust	MIPR	NSA	42168	8000	1-4Q	7290	1-4Q							
Accreditation of trusted suppliers	MIPR	NSA	22224	5392	1-4Q	4715	1-4Q							
Post-2012 plans and backup operations	MIPR	NSA	1270	2190	1-4Q	2576	1-4Q	41223	1Q					
Subtotal:			201317	41306		42127		41223						
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
Project Total Cost:			201317	41306		42127		41223						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605140D8Z - Trusted Foundry

PROJECT
P014

Event Name	FY 08				FY 09				FY 10																							
	1	2	3	4	1	2	3	4	1	2	3	4																				
(1) Funding Received																																
Aggregate Volume Purchase Agreements	Hardware																															
Intellectual Property (IP)	Software																															
Security Upgrades	Process																															
Certify Trusted Suppliers	DMEA																															
(2) Funding Received																																
Aggregate Volume Purchase Agreements					Congressional Appropriation RDT&E																											
Intellectual Property (IP)					Hardware																											
Security Upgrades					Software																											
Certify Trusted Suppliers					Process																											
					DMEA effort																											

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY

5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0605140D8Z - Trusted Foundry

PROJECT

P014

<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Funding Received	2Q - 4Q							
Aggregate Volume Purchase Agreements	2Q - 4Q							
Intellectual Property (IP)	2Q - 4Q							
Security Upgrades	2Q - 4Q							
Certify Trusted Suppliers	2Q - 4Q							
Funding Received		1Q - 4Q						
Aggregate Volume Purchase Agreements		1Q - 4Q						
Intellectual Property (IP)		1Q - 4Q						
Security Upgrades		1Q - 4Q						
Certify Trusted Suppliers		1Q - 4Q						
Funding Received (estimate)			2Q - 4Q					
Aggregate Volume Purchase Agreements			2Q - 4Q					
Form partnerships w/suppliers to improve the infrastructure for trust			2Q - 4Q					
Accreditation of trusted suppliers			2Q - 4Q					
Post - 2012 plans and backup operations			2Q - 4Q					

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0605648D8Z - Defense Acquisition Executive (DAE)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P650 Defense Acquisition Executive (DAE)	5.655	5.851	4.267					

A. Mission Description and Budget Item Justification:

The purpose of the Defense Acquisition Executive (DAE) Pilot Program is to:

- Provide horizontal integration of operationally mature technologies supporting the U.S. Combatant Commands and provides initial sustainment into the joint force, until a Service or Defense Agency is able to maintain sustainment via an established Program of Record (POR).
- Use Defense-Wide Program Elements (PEs) in Research, Development, Test and Evaluation (RDT&E) Budget Activity (BA) 5 for System Development and Demonstration and Major Equipment, Procurement funds (PE 0902198D8Z) for initial acquisition of equipment.

A few of the attributes of the DAE Pilot program are:

- Addresses a 2006 Quadrennial Defense Review (QDR) priority as an enabler to transition products and capabilities to the U.S. Combatant Commands and Joint/Coalition Warfighters.
- Provides sustainment for critical operational "joint" capabilities of TRL 7 or greater maturity.
- Integrates into programs beyond Milestone B accelerating a mature technology during the System Development and Demonstration phase, providing an avenue for operationally mature prototypes.
- Fully integrates capabilities into an existing or new system being deployed resulting in greater success during Milestone C decision.
- Joint Automated Deep Operations Coordination System (JADOCS) was first DAE project. JADOCS integrates 20 Service and Defense Agency C4ISR systems creating an interoperable, joint Common Operating Picture (COP) and coordination capabilities that enable time-sensitive targeting. Since 2006 the DAE Pilot program has supported core JADOCS programs across the U.S. Combatant Commands as it prepares to transition to the Net Enabled Command Capability (NECC) POR.
- FY 2010 will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0605648D8Z - Defense Acquisition Executive (DAE)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	5.788	5.883	5.850	
Current BES/President's Budget (FY 2010)	5.655	5.851	4.267	
Total Adjustments	-0.133	-0.032	-1.583	
Congressional Program Reductions				
Congressional Rescissions		-0.032		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.122			
Other	-0.011		-1.583	

In FY08 there was no congressional increases or decreases to the Defense Acquisition Executive (DAE) program element. The SBIR transfer was \$109 thousand and the STTR transfer was \$13 thousand.

In FY 2009 Congressional rescissions for Section 8104 and Section 8025.

In FY 2010 reflect DoD programmatic decisions and financial adjustments.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010					
JCTD Procurement (OSD Major Equipment: PE 0902198D8Z)	1.948	1.957	1.938					

Comment:

The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The model contains a BA3 development arm as well as the JCTD Transition (BA4) PE and Defense Acquisition Executive Pilot (BA5). Under the new JCTD process, only the JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. Promising JCTDs may receive transition funding during the transition period to the JCTD program.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 5

PE NUMBER AND TITLE

0605648D8Z - Defense Acquisition Executive (DAE)

The DoD also initiated the Defense Acquisition Executive (DAE) Pilot program in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs). The DAE Pilot program creates an acquisition path for operationally mature "joint unique" programs that do not have a traditional Service or Agency program of record. For sustainment of the selected, critical projects the DAE Pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration, Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM). The DAE Pilot program will support selected "operational like" joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTD/JCTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities.

D. Acquisition Strategy:

The DAE Pilot will review and select the most promising "joint unique" JCTDs that do not neatly fit under a Service area of responsibility and provide resources to enable the smooth transition of a critical capability to the warfighter. The DAE Pilot will provide an avenue for joint, operationally mature and transformational capabilities that are not easily resourced by any one Service, but the capability functions across more than one service. The DAE pilot program aims to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter. The DAE Pilot is part of the new JCTD model established in the FY 2006 President's Budget.

Only the JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE and the DAE BA5 PE. JCTD Transition BA4 will fund capabilities less mature than BA5 maturity and attempt to insert capability just prior to Milestone B. DAE BA 5 funding will insert development just prior to Milestone C. Many JCTDs will transition smoothly into a well identified program of record and not require funding from these two PEs which comprise the transition arm of the JCTD model.

Fitting the JCTD model strategy, the Joint Automated Deep Operations Coordination System (JADOCS) ACTD was selected as the first DAE Pilot project in FY 2006. JADOCS is under the purview of the Joint Precision Strike Demonstration (JPSD) program office and is providing new, enhanced automation support to command centers and component headquarters for horizontal and vertical interoperability of approximately twenty (20) C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, and Force Transition in War. Currently, this joint capability has not been absorbed into a program of record prior to FY 2008. To the joint warfighter, JADOCS has become a critical "go to war" planning and engagement execution tool. It continues to be used in OEF and OIF. The JADOCS prototype system is operationally deployed in four CoCom theaters. It is integrated with each Military Service and several Defense Agencies, with a wide range of real-world applications, from the tactical to the strategic level. JADOCS has not been supported by the Services as a program of record; however, it has evolved into a joint warfighting system deployed to over 900 locations and employed by over 5,000 joint operators worldwide. While still a prototype, it is presently embedded in the C2 architecture at USCENTCOM, USPACOM, USFK, and USEUCOM.

- FY 2010 DAE Pilot will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	Project Selection Focus					
08	Spiral Technologies					
08	Final Demonstration Completed					
08	Shared Funding and Visibility					
08	Independent MUA Assessment					
08	Transition of technology					

Comment:

The majority of funding from the DAE Program Element is forwarded to the Services/Defense Agencies that execute the individual JCTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the JCTD program, to include the individual JCTD projects. The JCTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. The DAE BA5 funding, unlike the JCTD BA3 developmental funding, is specifically targeted at increasing the speed and rate of transition for critical CoCom/Coalition capabilities. The DAE Pilot targets very mature "operational like" joint capabilities that are in high demand, yet not traditionally funded. The JCTD model has developed a set of metrics, two of which are centered around spiraling products and transitioning capability. The JCTD Transition funds are specifically targeted to towards these two in particular. These metrics are driven by the overall business process which includes six parts: (1) selection focus; (2) ability to spin-off spiral technologies; (3) time necessary to complete a final demonstration; (4) adequately resourced projects with appropriate oversight; (5) capability to complete an independent assessment of the technology; and (6) the number of successful capabilities that are actually transitioned to the warfighter. The table below defines the metrics of the new JCTD business process model.

- 1) Project Selection Focus: Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs.
- 2) Spiral Technologies: 25 percent of JCTDs will provide an operationally relevant product demonstration within 24 months of ID signature.
- 3) Final Demonstration Completed: 75 percent of JCTD projects complete final demonstration within three years of ID signature.
- 4) Shared Funding and Viability of resources: OSD provides significantly more funding than the former ACTD program, greater than 30 percent in some cases a majority of projected funding, especially in the first two years.
- 5) Complete independent assessment.
- 6) Number of capabilities transitioned to the warfighter.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5		PE NUMBER AND TITLE 0605648D8Z - Defense Acquisition Executive (DAE)					PROJECT P650	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P650 Defense Acquisition Executive (DAE)	5.655	5.851	4.267					

A. Mission Description and Budget Item Justification:

The purpose of the Defense Acquisition Executive (DAE) Pilot Program is to:

- Provide horizontal integration of operationally mature technologies supporting the U.S. Combatant Commands and provides initial sustainment into the joint force, until a Service or Defense Agency is able to maintain sustainment via an established Program of Record (POR).
- Use Defense-Wide Program Elements (PEs) in Research, Development, Test and Evaluation (RDT&E) Budget Activity (BA) 5 for System Development and Demonstration and Major Equipment, Procurement funds (0902198D8Z) for initial acquisition of equipment.

A few of the attributes of the DAE Pilot program are:

- Addresses a 2006 Quadrennial Defense Review (QDR) priority as an enabler to transition products and capabilities to the U.S. Combatant Commands and Joint/Coalition Warfighters.
- Provides sustainment for critical operational "joint" capabilities of TRL 7 or greater maturity.
- Integrates into programs beyond Milestone B accelerating a mature technology during the System Development and Demonstration phase, providing an avenue for operationally mature prototypes.
- Fully integrates capabilities into an existing or new system being deployed resulting in greater success during Milestone C decision.
- Joint Automated Deep Operations Coordination System (JADOCS) was first DAE project. JADOCS integrates 20 Service and Defense Agency C4ISR systems creating an interoperable, joint Common Operating Picture (COP) and coordination capabilities that enable time-sensitive targeting.
- The DAE Pilot program supports core JADOCS programs across the U.S. Combatant Commands as it prepares to transition to the Net Enabled Command Capability (NECC) POR.
- The DAE Pilot Program in FY 2010 will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Automated Deep Operations Coordination System (JADOCS)	5.655	5.851		

The Joint Automated Deep Operations Coordination System (JADOCS) is the Department's "go to war" system for targeting and fire support coordination. It is the first DAE pilot program the Department is sponsoring under this innovative process that will maintain the development of a capability coming out of a successful Advanced Concept Technology Demonstration (ACTD), but is not yet ready for a Service program of record. The outcome anticipated in JADOCS is a fully functioning, C4ISR capability that is seamlessly joint, integrating approximately 20 different Service and Agency systems into one common operational picture for the Combatant Commander (CoCOM).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0605648D8Z - Defense Acquisition Executive (DAE)	PROJECT P650
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The Joint Automated Deep Operations Coordination System (JADOCS) is a successful product of a series of previous ACTDs, most notably the Theater Precision Strike Operations (TPSO) and Counter-Multiple Rocket Launcher (C-MRL) ACTDs. JADOCS has evolved into a joint warfighter system application with over 2,000 workstations and 3,000 users worldwide. It is presently embedded in the architecture at USCENTCOM, USPACOM, USFK, and USEUCOM, but has not been formally designated a program of record. JADOCS provides a critical warfighting capability for the CoComs, including use in OIF and OEF as a residual leave behind capability from the ACTD. This system was previously employed in U.S. Tsunami relief humanitarian efforts and recently began to support USNORTHCOM for C2 automation of Defense Support to Civil Authorities. JADOCS is the system used for Time Sensitive Targeting coordination within the USCENTCOM AOR. The JADOCS capability includes software, tactics, techniques, and procedures (TTP), and field support. JADOCS is managed by PEO C3Ts, PM Battle Command Fire Support Command and Control Program Office.

The initial Automated Deep Operations Coordination System (ADOCS) system was renamed as the Joint Automated Deep Operations Coordination System (JADOCS) in FY 2005. In October 2005, the Army accepted joint responsibility to begin transition of JADOCS functionality into PM Battle Command Fire Support Command and Control and is being modernized and integrated into the NECC architecture. Until the transition to NECC is complete in 2009, JADOCS will continue to meet the critical requirements of the CoCom by providing enhanced automation support to command centers and component headquarters for horizontal and vertical interoperability of C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, Joint Targeting, Force Transition in War, and Defense Support to Civil Authorities.

The funds identified in the DAE Pilot program in FY 2007 through FY 2010 will enable modernization of the JADOCS architecture to ensure compatibility with the Army Battle Command System and the DoD Network Enhanced Command Capability (NECC); continuing the JADOCS business model of responding to evolving urgent warfighter requirements with operational capabilities, and ensuring JADOCS remains a joint versus Service specific capability. In FY 2007 developed and fielded new operational capabilities in response to a USCENTCOM Urgent Needs Statement; Increased capability will address asymmetric threats faster. Provided prototype set of NECC services; provided second generation CDE capability.

FY 2008 Output: Refined CENTCOM Urgent Needs Statement capabilities for improved targeting in an asymmetric warfighting environment; provided enhanced technical capability for prototype NECC services to begin transition to the NECC program of record.

FY 2009/2010 Planned Output: Sustain operational use of JADOCS. Complete Military Utility Assessment of new CENTCOM targeting capabilities will be assessed. Continue final development preparation for transition to the Army.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Agile Transportation for the 21st Century (AT21)			4.267

The DAE Pilot Program in FY 2010 will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot. The Defense Transportation System has had a stove piped process for managing movement requirements, lift asset availability, and execution planning in separate environments. It lacked an automated capability to match global movement requirements against available lift assets to produce an optimized transportation schedule that meets warfighter delivery requirements. There has been no tool that works across the Joint Planning and Execution Community to help produce Joint Operation Plans. The completed, successful AT21 ACTD has demonstrated commercial-off-the-shelf (COTS) technologies to automate and streamline business processes and demonstrate commercial best practices for supply chain management. AT21 provides continuous visibility, collaboration, automated processes, and alerts supporting transportation planning. It provides opportunities to streamline cargo movement. Its Turbo Planner tool reduces administrative time in developing, reviewing, and adjudicating adaptive plans and crisis orders for the Joint Operation Planning and Execution System. It is an operational system currently being used by USTRANSCOM and requires some sustainment until integrated into a program of record.

USTRANSCOM transitioned the collaborative capability in FY05 and initiated AT21 as a new program acquisition in FY06. The Turbo Planner tool transitioned to Global Command and Control System - Joint in summer 2007. USTRANSCOM will conduct an acquisition for COTS software and business process reengineering to provide transportation requirements consolidation, transportation planning processes workflow, and transportation scheduling/optimization.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5	PE NUMBER AND TITLE 0605648D8Z - Defense Acquisition Executive (DAE)	PROJECT P650
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FY10 Planned Output: Operational Use by the Warfighter: The collaboration functionality is used in the USTRANSCOM Deployment and Distribution Operations Center, and at U.S. Central Command (USCENTCOM), and USCENTCOM Forward to respond to world events. Turbo Planner pilot is being used by U.S. European Command to develop contingency plans.

C. Other Program Funding Summary:	FY 2008	FY 2009	FY 2010					
Procurement (JCTD Pilot), Major Equipment-OSD Def Wide (0902198D8Z)	1.948	1.957	1.938					

Comment:

The new JCTD Program provides a "cradle to grave" path for transformational joint capabilities. The model contains a BA3 development arm as well as the JCTD Transition (BA4) PE and Defense Acquisition Executive (DAE) Pilot (BA5). Under the new JCTD process, only the JCTDs that demonstrate the highest military utility as well as "operational like" maturity will be considered for the transition funding in the DAE Pilot program.

The DAE Pilot program was initiated in FY 2006 to assist in the continued development and eventual sustainment of a few selected Advanced Concept/Joint Capability Technology Demonstrations (AC/JCTDs). The DAE Pilot program creates an acquisition path for operationally mature "joint unique" programs that do not have a traditional Service or Agency program of record. For sustainment of the selected projects the DAE Pilot uses Defense Wide Program Elements (PEs) in BA-5 for System Development and Demonstration (SDD), Procurement for initial acquisition of equipment, and a limited amount of Operations and Maintenance (O&M) funding at Joint Forces Command (JFCOM).

D. Acquisition Strategy:

The DAE Pilot will review and select the most promising "joint unique" JCTDs or ACTDs that do not neatly fit under a Service area of responsibility and provide resources to enable the smooth transition of a critical capability to the warfighter. The DAE will provide an avenue for joint and transformational capabilities that are not easily resourced by any one Service. The DAE pilot program aims to continue a logical progression of program phases and development in order to be suitable for full production and deployment to the warfighter. The DAE Pilot is part of the new JCTD model established in the FY 2006 President's Budget.

Only the JCTDs that demonstrate the highest military utility and "operational like" maturity will be considered for the transition funding in the DAE BA5 PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from the DAE Pilot which is one of two components to the transition arm of the JCTD model. The DAE Pilot program will support selected joint capability technologies that are being integrated into programs that have passed Milestone B and are conducting engineering and manufacturing development to meet validated joint needs. The aim is to fully integrate these more mature capabilities into either an existing system or a new system being deployed. The result should be a successful Milestone C decision. With strong support from CoComs, ACTDs have enhanced joint capabilities providing an "on ramp" to conventional acquisition processes for joint needs in a system that emphasizes Service-sponsored core military capabilities. JCTDs will concentrate that effort with continued emphasis on transitioning demonstration-proven capabilities into Programs of Record (PoR) for sustainment of residuals and rapid acquisition and fielding of production models.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 5

0605648D8Z - Defense Acquisition Executive (DAE)

P650

Fitting the JCTD model strategy, the Joint Automated Deep Operations Coordination System (JADOCS) ACTD was selected as the first DAE Pilot project in FY 2006. JADOCS is under the purview of the Joint Precision Strike Demonstration (JPSD) program office and is providing new, enhanced automation support to command centers and component headquarters for horizontal and vertical interoperability of approximately twenty (20) C4ISR systems in the areas of Strike Planning, Situational Awareness, Joint and Combined Interoperability, and Force Transition in War. Currently, this joint capability has not been absorbed into a program of record prior to FY 2008. To the joint warfighter, JADOCS has become a critical "go to war" planning and engagement execution tool. It continues to be used in OEF and OIF. The JADOCS prototype system is operationally deployed in four CoCom theaters. It is integrated with each Military Service and several Defense Agencies, with a wide range of real-world applications, from the tactical to the strategic level. JADOCS has not been supported by the Services as a program of record; however, it has evolved into a joint warfighting system deployed to over 900 locations and employed by over 5,000 joint operators worldwide. While still a prototype, it is presently embedded in the C2 architecture at USCENTCOM, USPACOM, USFK, and USEUCOM.

- The DAE Pilot Program in FY 2010 will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
5 - System Development and Demonstration (SDD)			0605648D8Z - Defense Acquisition Executive (DAE)							P650				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
JADOCS Primary Hardware Development	Sub Allocation	Army ERDC	1964	867	1-4Q	968	1-4Q		1-4Q					
Agile Transportation for the 21st Century (AT21)	Sub Allocation	USTRANSCOM						4267	1-4Q					
Subtotal:			1964	867		968		4267						
Remarks:														
The DAE Pilot Program in FY 2010 will support Agile Transportation 21 (AT21). AT21 is an operational logistics system at U.S. Transportation Command that has been identified for sustainment and transition to a new joint POR via the DAE Pilot.														
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
JADOCS Support Costs			3000	3000	1-4Q	3000								
Subtotal:			3000	3000		3000								
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
JADOCS Test & Eval			844	788	1-4Q	883								
Subtotal:			844	788		883								
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
JADOCS Mgt Svcs			1000	1000	1-4Q	1000								
Subtotal:			1000	1000		1000								
Project Total Cost:			6808	5655		5851		4267						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE												PROJECT													
5 - System Development and Demonstration (SDD)		0605648D8Z - Defense Acquisition Executive (DAE)												P650													
Event Name	FY 08				FY 09				FY 10																		
	1	2	3	4	1	2	3	4	1	2	3	4															
Planning, Planning	█				█																						
Planning					█				█																		
Planning									█																		
Software Development	█																										
Software Development					█																						
Internal Testing, Internal Testing					█																						
Internal Testing									█																		
External Testing													█														
External Testing					█																						
External Testing	█																										

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0605648D8Z - Defense Acquisition Executive (DAE)

PROJECT
P650

Event Name	FY 08				FY 09																							
	1	2	3	4	1	2	3	4																				
Fielding Release, Fielding Release	■		■																									
Fielding Release							■																					
Support	■																											

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
5 - System Development and Demonstration (SDD)		0605648D8Z - Defense Acquisition Executive (DAE)					P650	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
Planning								
Planning								
Planning	1Q - 3Q							
Planning	1Q - 4Q	1Q - 2Q						
Planning	3Q - 4Q	1Q - 4Q	1Q - 3Q					
Planning		3Q - 4Q	1Q - 4Q					
Planning			3Q - 4Q					
Software Development								
Software Development								
Software Development								
Software Development								
Software Development	1Q - 4Q							
Software Development		1Q - 4Q						
Software Development			1Q - 4Q					
Software Development								
Internal Testing								
Internal Testing								
Internal Testing								
Internal Testing	2Q							
Internal Testing	4Q	1Q						
Internal Testing		4Q	1Q					
Internal Testing			4Q					
Internal Testing								
External Testing								
External Testing								
External Testing								
External Testing	2Q							

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT	
5 - System Development and Demonstration (SDD)		0605648D8Z - Defense Acquisition Executive (DAE)					P650	
External Testing		2Q						
External Testing			2Q					
External Testing	2Q							
External Testing								
Fielding Release								
Fielding Release								
Fielding Release	1Q							
Fielding Release	3Q							
Fielding Release		3Q						
Fielding Release			3Q					
Fielding Release								
Fielding Release								
Support	1Q - 4Q	1Q - 4Q	1Q - 4Q					
1.0.2.0								
1.0.3.0								
1.0.4.0								
1.0.5.0								
1.0.6.0								
1.0.7.0								
1.0.8.0	1Q - 2Q							
1.0.9.0	1Q - 4Q	1Q - 4Q	1Q					

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Exhibit R-2, RDT&E Budget Item Justification						Date: May 2009	
Appropriation/Budget Activity RDT&E, DW BA 06				R-1 Item Nomenclature: Wounded, Ill and Injured Program, 0807708D8Z			
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Total PE Cost	0.000	0.000	1.609				
	0	0	0				
<p>A. Mission Description and Budget Item Justification:</p> <p>Case Management Systems IM/IT for Wounded Ill, and Injured. Provides for Non-Clinical Case management and P&R Support of non-clinical enterprise / IT support for Case Management and/or incident reporting. The program is essential in the development of a Prototype uniform dashboard to include Clinical Case Management, Federal Non-Clinical Case Management, and web-based Federal Individual Recovery Plans with interface patient registration and interfaces with Federal Recovery Coordinators. Additional dashboards and statistical reports will be developed for use by the Case Management Office in their oversight and congressional reporting role.</p> <p>Data Sharing. Provides RDT&E for the secure and public web portals managed through the Interagency Program Office providing clinical and non-clinical and medical personnel access to benefits and services supporting Wounded Warriors care, rehabilitation, and reintegration. Required resources will enable design and development of the portals; identification of required content and capabilities; identification of source data/content; and development of integration strategy and security requirements.</p> <p>Supplemental funding provides for prototype CM dashboards and case management portals. This capability will provide seamless integration of data for patient management and information critical to the wounded warrior programs.</p>							

Exhibit R-2, RDT&E Budget Item Justification

Date: May 2009

Appropriation/Budget Activity
RDT&E, DW BA 06R-1 Item Nomenclature:
Wounded, Ill, and Injured Program, 0807708D8Z**B. Program Change Summary:**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget	0	0	0
Current Budget Estimates Submission	0	0	1.609
Total Adjustments	0	0	0
Congressional program reductions	0	0	0
Congressional increases ¹	0	0	0
Reprogrammings	0	0	0
SIBR/STTR Transfer	0	0	0
Other	0	0	0

Change Summary Explanation:**C. Other Program Funding Summary:**

¹ FY 2008 funding was received from GWOT Supplemental appropriation. It is expected that FY 2009 GWOT Supplemental funding will be made available to continue development of approved Presidential Commission recommendations and the 2008 NDAA.

D. Acquisition Strategy: N/A**E. Performance Metrics:** N/A

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R-1 Line-Item No. 125

Page 2 of 5

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E, DW BA 06			Project Name and Number Case Management Systems - Wounded, Ill, and Injured, PE 0807708D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
	0.000	0.000	.980				
RDT&E Articles Quantity	0	0	N/A				
<p>A. Mission Description and Budget Item Justification: Case Management Systems IM/IT. Funding includes development of web-based tools for use in overseeing the Service member recovery and facilitating resolution of transition process issues. In FY 2008, the Department of Defense and VA made significant progress leveraging the Veterans Tracking Application with access to existing Department of Defense Case Management (CM) tools and resources. The work will continue through FY 2009 with a prototype dashboard that leverages existing case management tools and resources in a single sign on construct. The work will continue in FY 2010 to include further enhancements of the prototype and integration of case management models. The Department of Defense's request includes funding for development of content management systems. Funding also includes further development of an on-going initiative to provide authorized Reserve Component medical personnel with the capability to read and document medical encounter information and order necessary medical tests, consults and procedures throughout a Service Member's continuum of care with AHLTA. Funding for establishing this capability across the Reserve Component will pay for the acquisition of hardware, development, testing, and implementation of remote access capability that includes remote access gateways, servers, associated licenses and capacity planning studies.</p> <p>Justification: Non-medical Care Managers are responsible for provide oversight of welfare and quality of life issues. They assist the service member and family in resolving problems involving financial, administrative, personnel, and other non-medical issues that may occur during the recovery, rehabilitation and reintegration phases across the continuum of care. Full funding will provide the capability for DoD Case Managers to view non-clinical data on a Wounded Warriors from one location. FY 2009 funding began the implementation of the July 2007 Dole-Shalala Recommendations and initial development of the 2008 NDAA required comprehensive policy.</p>							
B. Accomplishments/Planned Program							
	FY 2008	FY 2009	FY 2010				
Accomplishment/Effort/Subtotal Cost	0.000	0.000	0.980				
RDT&E Articles Quantity	0	0	0				
C. Other Program Funding Summary: N/A							
D. Acquisition Strategy: N/A							
E. Performance Metrics: N/A							

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E, DW BA 06			Project Name and Number Case Management Systems - Wounded, Ill, and Injured, PE 0807708D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
	0.000	0.000	.500				
RDT&E Articles Quantity	0	0	N/A				
<p>A. Mission Description and Budget Item Justification: Non-Clinical Case Management Benefits Portal Development. This initiative will provide both public and secure web access to benefits and services supporting Wounded Warriors through a secure/interactive Web-based portal tailored to the needs of the Wounded Warrior, identifying both VA/DoD benefits and services important to a Wounded Warrior’s recovery plan. The Portal will customize benefit information based upon user profile to include display of benefits to support stage recovery (see LoA 3) and will leverage existing VA/DoD business services/systems to create “One Pathway” for the Wounded Warrior so that they may more actively participate in their clinical recovery plan, and interfaces with their Federal Individual Recovery Plan. In FY 2008 the Department of Defense and Veteran Affairs (DoD/VA) will establish a new Portal presence with links to MyHealthe-Vet, eLearning LMS, DoD’s content management system, DoD’s endeca search engine and pre-negotiated access for all members with the establishment of secure, single sign-on infrastructure. Work on migration from links and viewable information toward the recommended final product, the implementation of common governance framework, and single sign-on and tailored benefits access across federal agencies and civil sector based on user’s profiles will continue through FY 2009. For years FY 2010 and out, content management, sustainment, and extensions to include additional portals as appropriate will be accomplished.</p>							
B. Accomplishments/Planned Program							
		FY 2008	FY 2009	FY 2010			
Accomplishment/Effort/Subtotal Cost		0.000	0.000	.500			
RDT&E Articles Quantity		0	0	N/A			
C. Other Program Funding Summary: N/A							
D. Acquisition Strategy: N/A							
E. Performance Metrics: N/A							

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E, DW BA 06			Project Name and Number Case Management Oversight - Wounded, Ill, and Injured, PE 0807708D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
	0.000	0.000	.129				
RDT&E Articles Quantity	N/A	N/A	N/A				
A. Mission Description and Budget Item Justification:							
<p>Department of Defense Case Management Oversight Office. Funds the OSD oversight arm of the development and implementation of comprehensive, uniform applications and standards across the Services and Agencies. The CMO staff will provide policy, program and developmental oversight, strategic communications and relations, and will ensure that Congressional reporting requirements are met. Pays for five (5) contractors to provide study and contract support functions to comply with the implementation of the Dole-Shalala (DS) Report and the 2008 NDAA.</p>							
B. Accomplishments/Planned Program							
		FY 2008	FY 2009	FY 2010			
Accomplishment/Effort/Subtotal Cost		0.000	0.000	.129			
RDT&E Articles Quantity		0	0	N/A			
C. Other Program Funding Summary: N/A							
D. Acquisition Strategy: N/A							
E. Performance Metrics: N/A							

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA 06	PE NUMBER AND TITLE: 0603757D8Z TRAINING TRANSFORMATION (T2)							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
Total PE	55.682	58.009						
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758	36.718	45.093						
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759	10.666	3.570						
JOINT SIMULATION SYSTEMS (JSS) Project Code P761	10.366	9.346						
	0	0						
IRREGULAR WARFARE (IW) Project Code P764	0	0						
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769								
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760	0	0						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

****The PE will change to 0804767D8Z in FY10 and out. ****

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense’s (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**May 2009**APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA 06PE NUMBER AND TITLE:
0603757D8Z TRAINING TRANSFORMATION (T2)

JNTC: Initially established in 2003, JNTC continues to develop and integrate Advanced Training Technologies (ATT) into a seamless Joint training environment. JNTC establishes the overarching Joint framework and context necessary for COCOMs and Services to achieve a Joint training environment through an integrated network of training sites and nodes. JNTC provides the common standards, architecture, and development processes required to link Joint training programs. By leveraging existing training programs or initiating specific actions, JNTC is providing credible opposing force capabilities and expanded access to assets typically unavailable to the training audience by integrating virtual or constructive representations of these capabilities. This furthers the integration of Joint training objectives into Service training events, while capturing the objective data necessary to provide a complete and accurate after action review. This program develops and enhances current and future Joint training enterprise capabilities.

TCAoA: The TCAoA effort focuses on comparing current training capabilities with training requirements in order to identify gaps in our current Joint training capability, to identify alternatives for resolution and to assess the cost and effectiveness of these alternatives. Specifically, the TCAoA focuses on: (1) developing and integrating enhancements to the existing and programmed constructive simulations, (2) pursuing selected alternative training methodologies, (3) developing an innovative acquisition prototype, (4) developing solutions to implement recommendations from the Joint Staff's comprehensive study to re-engineer Joint training and (5) developing a clear management and oversight structure to meet future Joint training requirements. These efforts provide solutions to the 35 gaps and seams in Joint and Service training requirements identified by the COCOM's in the SECDEF 2004 TCAoA study. These efforts increase warfighter Joint training capabilities with improved constructive simulations and streamlined acquisition processes, leveraging industry training methodologies and technologies to provide on-demand Joint training tailorable to COCOM requirements for Joint Task Force headquarters staffs and individuals.

JSS: This effort provides warfighters with enhanced Joint Live, Virtual, and Constructive (JLVC) based training capabilities resident in the Joint Force Trainer Toolkit (JFTT). The JFTT is a set of training enablers, and "certified systems" that are interoperable and acceptable for usage within the Joint training environment. The JFTT is a one-stop shop that enables Services, COCOMS, Agencies and Coalition partners to deliver trained, capable, and interoperable joint forces.

Irregular Warfare (IW): 85% of the casualties in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are from direct fire and improvised explosive devices in an IW environment. This research and development effort is aimed at closing training gaps at the tactical and operational level that will ensure our ground forces receive immersive pre-deployment training on par with that provided to our air, maritime, and Special Forces. The effort will research, develop and integrate technologies to enhance training for General Purpose Forces (GPF) to conduct IW operations through enhanced interagency teams, human terrain/cueing/profiling training, cultural awareness training, mixed reality training, and distributed training.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)**May 2009**

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA 06

PE NUMBER AND TITLE:

0603757D8Z TRAINING TRANSFORMATION (T2)

JKDDC Advanced Technologies: JKDDC's requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployed to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs cultural awareness training. JTF 'battle staffs' will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical 'go to war' tasks.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE:							
RDTE, Defense Wide BA 06	0603757D8Z TRAINING TRANSFORMATION (T2)							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	57.750	58.009						
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758	36.718	45.091						
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759	10.666	3.570						
JOINT SIMULATION SYSTEMS (JSS) Project Code P761	10.366	9.346						
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769	0	0						
IRREGULAR WARFARE (IW) Project Code P764	0	0						
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760	0	0						

A. Mission Description and Budget Item Justification:

****The PE will change to 0804767D8Z in FY10 and out.****

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)
- Joint Combined Training Center (JCTC)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA 06	PE NUMBER AND TITLE: 0603757D8Z TRAINING TRANSFORMATION (T2)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	57.750	38.728		
Current BES/President's Budget (FY 2010)	60.524	58.009		
Total Adjustments	-2.774	19.281		
Congressional Program Reductions	-1.231	-.319		
Congressional Rescissions	-1.543			
Congressional Increases		19.600		
Reprogrammings				
SBIR/STTR Transfer				
Other				

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
O&M PE 0901298D8Z	69.830	66.436						
Procurement, PE 0901298D8Z	15.990	16.192						

D. Acquisition Strategy: Not Applicable

E. Performance Metrics: The USJFCOM Joint Warfighting Center (JWFC) Joint Force Trainer Enterprise Resource Planning Board (JFT ERPB) established in FY07 reviews all RDT&E equities. The JFT ERPB consists of senior technical, operational, program manager, and stake holder representatives within the Joint Force Trainer Community. The board's responsibilities encompass merging and prioritizing technical training requirements. It apportions work to the RDT&E elements based on an assessment of where the work is best accomplished. The board will evaluate the efficacy of development efforts based on performance metrics and will vote on whether or not to continue the effort. This process will ensure the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, money, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
- Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

The ERPB is the strategic management forum where the outcomes of performance relative to our external customers, stakeholders, and strategic stewardship of resources are the focus of discussion. Performance against the targets will be assessed and reported monthly, briefed quarterly to the ERPB, and rolled up into the JWFC Joint Training End-of-Fiscal Year Performance Report to ensure transparency and accountability.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06		PE NUMBER AND TITLE 0603757D8Z TRAINING TRANSFORMATION (T2)							
	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	
COST (\$ in Millions)									
P758 Joint National Training Center (JNTC)	36.718	45.091							

A. Mission Description and Budget Item Justification: DoD directed USJFCOM to establish the JNTC Advanced Training Technology (JNTC/ATT) to develop future training concepts and capabilities. The mission is to develop robust RDT&E capabilities that integrate Live, Virtual, and Constructive (LVC) elements into a seamless Joint training environment. JNTC creates Joint warfighting conditions through a networked collection of interoperable training sites, ranges, and nodes that synthesize personnel, doctrine, and technology to deliver and achieve “Joint Context” for COCOM and Service training requirements. JNTC provides research and development (R&D) within an LVC distributed test-bed supporting the advancement of training technologies in the context of a Joint integrated battle space. The test bed operates as a continuous training R&D environment, providing the foundation for a distributed and deployable Mission Rehearsal System, integrating live Intelligence, Surveillance and Reconnaissance feeding the Common Operational Picture. These funds provide critical Joint/Coalition Service members and interagency partner’s enhanced training to allow requisite enhancements to existing training systems, capabilities, and technologies. These enhancements improve training efficiencies and provide an integrated LVC environment. This capability precludes the necessity for conducting large-scale live exercises to achieve the SECDEF’s T2 vision.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P758 Joint National Training Center (JNTC)	27.732	22.863		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide 06

PE NUMBER AND TITLE

0603757D8Z TRAINING TRANSFORMATION (T2)

FY 2008 Accomplishments:

- Created 34 Modified Universal Joint Task architectures based on lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom focusing on intelligence task requirements. Maintained existing Joint Task Articles/Modified Universal Joint Task architectures as changes occur.
- Implemented 137 Certified Mitigation Solutions in Service-nominated Joint-Live Virtual Construction systems in accordance with Operation Management Process Action Team approved plan.
- Completed deployable spiral 1 on an enterprise solution to enable near-real time and post event assessment of the Joint Warfighters performance and developed a joint roadmap for the implementation of the multiple independent level of security solution for instrumentation.
- Developed and integrated Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment that enabled forces to train for Combating Weapons of Mass Destruction missions.
- Conducted research and development of new and emerging technologies such as immersive virtual technologies, story driven training, light simulation/federations, massive-multiplayer online games, training objective driven simulations, embedded training, and joint community unique simulations.
- Development of Opposing Forces (OPFOR) Capabilities: Continued development of Multi-Spectral Threat Emitter systems and transitioned initial variants into production, testing and training events. Concluded Man Portable Air Defense Systems development and testing and transitioned to initial low rate production. Initiated development and integration of an OPFOR Command & Control (C2) network to meet Navy Air Wing training requirements on the Fallon Range complex. Developed Battlefield Communications Simulation system upgrades that addressed emerging Navy and Air Force requirements. Transitioned procured systems into training events. Concluded Virtual Joint Suppression of Enemy Air Defenses development and transitioned the capability onto the Information Operations (IO) Range network and participation in appropriate exercises. Continued to provide operability enhancements, expanded traffic simulation and detailed behavioral models for the Information Operations Traffic Generator. Continued to develop concealment, countermeasures and decoy (CCD) equipment capabilities and technologies. Transitioned these CCD technologies to procurement and training events.
- Information/Knowledge Management Capabilities: Integrated Collaborative Information Environment (CIE) based products to provide a global collaborative planning capability for Joint training. Developed a web-accessible Enterprise Repository with the capability to track Joint requirements from validation through solutions development.
- Researched and defined a low cost, unclassified version of the Joint Training and Experimentation Network (JTEN) that leverages existing infrastructure that will more fully integrate the National Guard and Interagency into the Joint Training Enterprise.
- Conducted successful Proof of Concept to use an external Computer Network Defense service provider to enhance security during high risk events. This proof of concept will be implemented in FY09.
- Continued Next Generation JTEN detailed engineering, design and product evaluation/integration testing.
- Cross Domain Solutions: Completed and published Multinational information sharing Cross-Domain Solutions Information Exchange Requirements study. Began evaluation of Gov't off the Shelf (GOTS) and Customer off the Shelf (COTS) Joint training cross-domain solutions (CDS) in the Joint Advanced Training Technologies Laboratory (JATTL).
- Released version 1.0 of the Joint Low Overhead Driver simulation, which will increase the number of simulation objects within the training synthetic environment while reducing the number of required simulation operators and equipment. This will allow for a more realistic representation of the battle space, to include hostile, friendly and neutral weapon systems, personnel and equipment.

Developed and evaluated Agile Software Capability Intervention (ASCI) products for a distributed test bed prototype in the JATTL focused on the Joint Live Virtual Constructive (JLVC) federation.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide 06

0603757D8Z TRAINING TRANSFORMATION (T2)

2009 Accomplishments:

- Completed deployable spiral 2 (tactical data link and voice/video capability) to provide an enterprise solution to enable near-real time and post event assessment of the Joint Warfighter's performance.
- Continued to develop and integrate Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment.
- Continued development and transition of an enhanced Computer Network Defense solution that enhances security during high risk events.
- Certified eight Training Systems for interoperability with and integration into the Joint Training Enterprise thereby reducing costs and exercise preparation time.
- Released Joint Rapid Scenario Generation target and infrastructure service for use in the Joint Training Enterprise. This activity will reduce training event support costs to Joint Forces Command, Combatant Commands and Service training elements by reducing or eliminating the need for duplicative target and infrastructure data producing services.
- Released Joint Live Virtual Constructive Federation versions 2 and 3.
- Implemented Net-Centric Enterprise Services (NCES) information exchanges with external commands, departments, and agencies by publishing and subscribing to information through web services.
- OPFOR Capabilities: Concluded development and integration of the OPFOR Command & Control (C2) network on the Fallon Range complex. Develop and integrate an OPFOR Command & Control (C2) Network meeting Navy/USMC Joint Task Force Exercise requirements for the entire East Coast Range Complex. Upgrade Battlefield Communications Simulation System (BCSS) to provide additional Blue Force (BLUFOR) Intelligence, Surveillance & Reconnaissance (ISR) training, tactics & procedures (TTPs) opportunities. Transition upgrades into additional systems being procured for Air Force and Navy training programs. Continue developing traffic simulation algorithms and detailed behavioral models for the Information Operations Traffic Generator while expanding its use throughout the IO Range Network. Continue concealment, countermeasures and decoy (CCD) equipment capabilities and technologies development. Initiate transition planning for CCD technologies into training events. Initiate NextGen Multi-Spectral Threat Emitter system development. Continue developing and integrating full effective radiated power (ERP), reactive response, mobility and remote Command & Control (C2) capabilities into existing systems. Transition these upgraded production variants into training events. Initiate Man Portable Air Defense System upgrade to a two color, Ultra-violet (UV) and Infrared (IR), capability for stimulating additional aircraft survivability equipment systems.
- Continued the development of the collaborative information environment tools, ensuring integration with the Net Centric Enterprise Services and products. Develop transition plans for the developed systems to integrate into Net Centric Enterprise Service solutions for Information/Knowledge Management Capabilities.
- Completed research, planning and engineering to transition JTEN to NextGen JTEN and complete Global Information Grid (GIG) alignment of the JTEN.
- Completed research to identify customer off the shelf/government off the shelf alternative means of extending the JTEN to remote/austere locations and locations where security constraints do not permit persistent installation of JTEN service delivery points.
- Researched communication technologies that will facilitate the distribution of mixed reality training around the globe - moving electrons instead of people to ensure the warfighter's last training experience is as close to the real thing as possible.
- Continued research and development efforts to mitigate or resolve identified Joint training cross-domain information sharing issues/shortfalls/gaps.
- Developed and tested coalition training network reference architecture with the Navy and the Air Force.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JNTC O&M Funding	56.984	58.464						
JNTC Procurement Funding	15.990	16.192						

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PE NUMBER AND TITLE

RDTE, Defense Wide 06

0603757D8Z TRAINING TRANSFORMATION (T2)

Comment:

D. Acquisition Strategy:

E. Major Performers:

Recipients	City/State	Description
General Dynamics Information Technology (GDIT)	Suffolk, Va	Joint Advance Training Technology Lab (JATTL) support, Award date Feb 2004.
NAVAIR Warfare Center	China Lake, CA Pt. Mugu, CA	Instrumentation and OPFOR support
Program Executive Office Simulation, Training and Instrumentation (PEOSTRI)	Patuxent River, MD	Multiple contracts
Air Force Electronic Systems Center	Orlando, FL	OPFOR support
Missile and Space Intelligence Agency	Hanscom AFB, MA	OPFOR support
US Army CECOM	Redstone, AL	OPFOR support
National Simulation Center	Ft. Monmouth, NJ	Modeling and Simulation support
NAVAL SPACE WARFARE CENTER (SPAWAR)	Ft. Leavenworth, KS Charleston, SC	Communications support

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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P759 Joint Training Capability Analysis of Alternatives (TCAoA)	10.666	3.570						

A. Mission Description and Budget Item Justification: Joint Force Trainer supports development capabilities in Joint simulations to eliminate training gaps identified by the COCOMs and in accordance with SECDEF's T2 objectives. In accordance with the Unified Command Plan (2006), USJFCOM JWFC leads the development and implementation of system architectures that directly support distributed Joint training requirements of the other COCOMs, Joint Task Forces, and Defense Agencies. The underlying premise of TCAoA centers on privatization of training support and development with the competitive market forces driving the development of technologies to reduce the cost of training. The creation of a JFCOM Joint Oversight Board establishes a governance process to review the effectiveness of the tools and the providers. Management of the toolkit, which is a set of capabilities, and system certified technologies that are interoperable and acceptable for usage within the Joint training environment. This Joint Force Trainer Toolkit supports Joint Exercises, Doctrine, Lessons Learned, Distributed Learning and Modeling & Simulation will be a government-led Consortium with industry and academia that ensures the tools in the toolkit comply with the requirements of the common architecture. A number of emerging technologies from Industry, Government and Academic sources that offer the greatest potential to reengineer Joint training are considered for training use. These technologies include Light Simulations, Light Federations, Story-Driven Training, Massively-Multi-player Games, Training Objective Driven Simulation, Embedded Training, and Joint Community Unique Simulations

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P759 Joint Training Capability Analysis of Alternatives (TCAoA)	10.666	3.570		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE 0603757D8Z TRAINING TRANSFORMATION (T2)
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FY 2008 Accomplishments:

- Completed analysis of the National Guard Bureau’s (NGB) training and certification requirements to train its 17 Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Enhanced Response Force Package (CERFP) teams and included requirements in NGB training package.
- Developed an innovative acquisition strategy and a performance based work statement to support the NGB with an innovative training package for its role for in Homeland Defense, specifically in CBRNE incident management.
- Researched the M&S data, tools and standards available and populated the web-based tool vendor’s site for use by government, academia, and industry that is used in satisfying requirements of RAND Corporation study. The RAND study, as requested by Under Secretary of Defense for Personnel and Readiness, provides a detailed implementation and evaluation plan for TCAoA prototypes.
- Developed a comprehensive innovative individual and collective training package for a unit comprising a Chemical, Biological, Radiological, Nuclear, and Explosive Enhanced Response Force Package (CERFP).
- Developed and in process to deliver a training package through an innovative acquisition strategy to recertify a 186 man National Guard, CERFP unit headquartered in Austin, Texas in May 2009.
- Established forum to initiate open standards for data models and federation object models to reduce integration costs.
- Developed solicitation for use case nominations for Joint training requirements to support FY09 innovative acquisition process as outlined under TCAoA Alt#4 principles.
- Developed criteria for training situations and metrics for evaluation of NGB CERFP training.
- Developed and implemented an acquisition strategy for the Joint Knowledge Online hosted Immersive Learning Environment (ILES) web based, small group training capability facilitating the training needs of deploying warriors to joint task forces staffs throughout the world.

Developed and implemented an acquisition strategy for the Joint Knowledge Online hosted Virtual Culture Awareness Trainer (VCAT) web based, gaming training capability supporting the cultural awareness training needs of deploying joint warriors to Central Command areas of operations.

FY 2009 Accomplishments:

- Provided additional CERFP recertification training to the CERFP teams at Columbus, Ohio [March], Omaha, Nebraska [June], and Arden Hills, Minnesota [September].
- Established open standards for data models and federation object models to reduce integration costs.
- Developed prototype COCOM training capabilities based on the following technologies; Massively Multiplayer Games, Story-Driven Training, and Light Simulations/Federations.
- Developed a use case for training United States Africa Command (AFRICOM) staff in mission rehearsal using non-kinetic scenarios.
- Developed criteria for training situations and metrics for evaluation of training.
- Integrated Real World software virtual environment into the Small Unit Immersive Training Environment (SUITE) Joint Capability Technology Demonstration (JCTD).

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Joint Training Capability Analysis of Alternatives (TCAoA)	0	0						

Comment:

D. Acquisition Strategy: Not Applicable

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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0603757D8Z TRAINING TRANSFORMATION (T2)

E. Major Performers:

Recipients	City/State	Description
Northrop Grumman/Cubic/Booz Allen Hamilton	Suffolk, Va	Immersive Learning Environment (ILES)
Alelo Tactical Language Training LLC	Los Angeles, Ca	Virtual Cultural Awareness Trainer (VCAT)
Program Executive Office Simulation, Training, Ranges and Instrumentation (PEO STRI)	Orlando, Fl	Program oversight for data standards, architecture and ontologies.
General Dynamics Information Technology	Suffolk, Va	Conduct system integration and validation of development programs.
Defense Advanced Research Projects Agency (DARPA)	Various	Develop and transition immersive technologies into Joint training programs.

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P761 Joint Simulation System (JSS)	10.366	9.346						

A. Mission Description and Budget Item Justification:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

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In accordance with Secretary of Defense tasking JSS will fund research, development, testing and integration of enhancements to Joint simulations that eliminate COCOM identified training shortfalls. USJFCOM leads the development, integration, and operation of systems and architectures that directly support distributed Joint training requirements of other COCOMs, Joint Task Forces, and Defense Agencies. To that end, JSS provides the Joint training environment with the ability to insert emerging research and development technology to enhance existing systems in Joint, Live, Virtual and Constructive (JLVC).

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
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P761 Joint Simulation System (JSS)

10.366

9.346

FY 2008 Accomplishments:

- Released version 1.0 of the Joint Multi-Resolution Model Federation in February, 2008 as part of the Joint Training Toolkit. This capability will facilitate seamless training at both the tactical and operational levels of war, enhancing the training experience while reducing event simulation support costs. This capability was purchased by NATO and will be used by NATO to support training with coalition partners.
- Enhanced the Joint Conflict and Tactical Simulation, Low Overhead Driver to reduce exercise operation costs.
- Incorporated chemical, biological, radiological, and nuclear effects into the Joint, Live, Virtual, and Constructive Federation.
- Enhanced electronic warfare, or jamming, in the Joint, Live, Virtual, and Constructive Federation.
- Provided distributed data services to reduce exercise costs for the Department of Defense.
- Established open standards for data models and federation object models to reduce integration costs.
- Incorporated the U.S. Army non-kinetic effects model into the Joint, Live, Virtual, and Constructive Federation.

FY 2009 Accomplishments:

- Released version 2.0 of the Joint Multi-Resolution Model Federation as part of the Joint Trainer Toolkit. This capability will improve tactical-to-operation level of warfare interactions and incorporate additional logistics and intelligence functionality.
- Enhanced logistics modeling-and-simulation capabilities to fully support global deployment requirements of U.S. Transportation Command.
- Implemented a civilian infrastructure model in the Joint Theater Level Simulation.
- Implemented a psychological operations capability in the Joint, Live, Virtual, and Constructive Federation.
- Established data services for terrain, targeting, and infrastructure, to provide faster and higher-fidelity mission rehearsals.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
	0	0						

Comment:

D. Acquisition Strategy: Not Applicable

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RDTE, Defense Wide 06

PE NUMBER AND TITLE
0603757D8Z TRAINING TRANSFORMATION (T2)

E. Major Performers:

Recipients	City/State	Description
Lawrence Livermore	Suffolk, VA	Joint Conflict and Tactical Simulation (JCATS)
Northrop Grumman	Suffolk, VA	Joint Support Team/Joint Software Support Facility (JSSF) Contract Support
Northrop Grumman	Orlando, FL	Joint Support Team/Joint Development Integration Facility
Rolands & Associates	Monterey, CA	(JDIF) Contract Support Joint Theater Level Simulation (JTLS)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P764 Irregular Warfare (IW)	0	0						

A. Mission Description and Budget Item Justification:

There is an immediate and critical need to develop immersive training solutions for small combat units to conduct Irregular Warfare (IW) operations in complex urban and restrictive terrain environments. The U.S. military's dominance in traditional modes of combat has pushed its adversaries toward irregular and asymmetric tactics. Moreover, the threat environment is becoming increasingly complex due to mega-urbanization, the presence of large numbers of noncombatants in any military action, and the evolving dynamics of the information environment. Meeting the challenges of the current and future IW environment requires more tactically-enhanced small combat units. Hence, the Department of Defense must prepare small combat unit leaders/leader teams to make tactical and ethical decisions that carry significant strategic implications. Additionally, leaders and staffs at all levels must understand their role in supporting this type of fight: one that can move from non-kinetic to kinetic and back in seconds, and one where the people are the battlefield and not just collateral actors. Accordingly, DoD must specifically train and broadly educate its joint forces to understand cultures and populations, to thrive in chaotic environments, to recognize and respond creatively to dynamic and demanding situations, and to operate with coalition, interagency, and host nation partners as the norm and not the exception. To accomplish IW training objectives, the Department requires training facilities that fully immerse the lower-level units in a live, virtual, and constructive training environment that replicates as closely as possible the conditions of today's and tomorrow's battlefield. These training facilities must allow the unit to utilize the full range of assets that will be available to them in actual missions including their individual equipment, individual and crew-served weapons, command and control systems, navigation systems, and target location/designation systems. It will link joint enablers such as Intelligence, Surveillance & Reconnaissance (ISR) and joint fires from many different locations across the joint force, as well as link training units' company, battalion, and regiment/brigade, which may also be conducting immersion training simultaneously. The need is to identify those common training needs and solutions that require a Joint approach across the Services. The strategy will be to leverage and integrate the existing and emerging Coalition, Inter-agency, Service and COCOM capabilities that can address the needs of the warfighter to train in an IW environment.

B. Accomplishments/Planned Program:

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE 0603757D8Z TRAINING TRANSFORMATION (T2)
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Accomplishments/Planned Program Title:	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P764 Irregular Warfare	0	0		

FY 2008 Accomplishments: Not applicable.

FY 2009 Accomplishments: Not applicable.

C. Other Program Funding Summary:	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
IW O&M Funding	0	0						
IW Procurement Funding	0	0						

Comment:

D. Acquisition Strategy: Not Applicable

E. Major Performers: TBD

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P769 Joint Knowledge Development & Distribution Capability (JKDDC)	0	0						

A. Mission Description and Budget Item Justification: The Departments requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services are developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployment to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs (cultural awareness training). JTF ‘battle staffs’ will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical ‘go to war’ tasks.

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B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:

FY 2008	FY 2009	FY 2010	FY 2011
0	0		

P769 Joint Knowledge Development & Distribution Capability (JKDDC)

FY 2008 Accomplishments: See TCAOA ALT 5 section for the ILES and VCAT efforts.

FY 2009 Accomplishments: Not applicable.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JKDDC O&M Funding	11.194	10.004						
JKDDC Procurement Funding	0	0						

Comment:

D. Acquisition Strategy: Not Applicable

E. Major Performers:

Recipients	City/State	Description
Northrop Grumman	Suffolk, VA	Immersive Learning Environment (ILES)
Cubic	Suffolk, VA	Immersive Learning Environment (ILES)
Concurrent Technologies Companies	Suffolk, VA & Johnstown, PA	Immersive Learning Environment (ILES)
Alelo Tactical Language Training, LLC	Los Angeles, CA	Virtual Cultural Awareness Trainer (VCAT)

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PE NUMBER AND TITLE
0603757D8Z TRAINING TRANSFORMATION (T2)

Booz Allen Hamilton

Suffolk, VA

Immersive Learning Environment (ILES)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P760 Joint Combined Training Center (JCTC)	0	0						

A. Mission Description and Budget Item Justification: Supports USPACOM execution of SECDEF initiative with Australian Defence Forces to strengthen bilateral cooperation by enhancing the Joint Combined Training Capability (JCTC). Provides for design and implementation of prototype solutions for US-Australian forces to train at instrumented Force-on-Force, Joint Fires, and Electronic Warfare ranges in Australia that will be fully interoperable with and extend the capabilities of USJFCOM's Joint National Training Capability.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P760 JCTC	0	0		

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May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide 06

0603757D8Z TRAINING TRANSFORMATION (T2)

FY 2008 Accomplishments: Not applicable.

FY 2009 Accomplishments: Planned activities:

- Conduct a technical study to determine the next phases for developing the Shoal Water Bay Training Area (SWBTA) for instrumented, live, force-on-force engagements and training by U.S. and Australia Defense Forces (ADF).
- Complete site surveys, technical research, and prototype designs for fully instrumented, remotely observable joint fires ranges with distributed control measures at the Bradshaw Field Training Area (BFTA) in Northern Australia and the Cultana Training Area (CUTA) in Southern Australia.
- Conduct a telecommunications study to develop a technical solution to connect BFTA's synthetic environment to the Australian Defense Training and Experimentation Network (DTEN) and USJFCOM's Joint Training and Experimentation Network (JTEN) in support of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.
- Conduct a follow-on telecommunications study to develop a technical solution to link multiple synthetic environments created throughout Australia (including SWBTA, BFTA, and CUTA) with the Australian DTEN and USJFCOM JTEN in support of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.
 - Provide technical advice and assistance to develop a deployable Exercise Control Center to command and control activities of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JCTC O&M Funding	0	2.160						

Comment:

D. Acquisition Strategy:

E. Major Performers:

Recipients

Contractors (TBD)

City/State

Hawaii and Australia

Description

Seven (7) Contractor Manyear Equivalentents (CME) performing technical studies, site surveys, and prototype designs for training, exercise, and related telecommunications solutions.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE
 PE 0604774D8Z Defense Readiness Reporting System (DRRS)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	11.760	11.322	13.121					

A. Mission Description and Budget Item Justification: This funding supports Defense Planning Guidance (DPG) directing the Department of Defense (DoD) components to develop guidelines and procedures for a comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. The Defense Readiness Reporting System (DRRS) establishes a capabilities-based, adaptive, near real-time readiness information system for the DoD. This system is being designed to measure the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. DRRS also hosts information and applications used to support Joint Forces Command (JFCOM), Transportation Command (TRANSCOM), Special Operations Command (SOCOM) and Strategic Command (STRATCOM) in their roles as the Joint Force Providers.

The transformation of readiness reporting into a new comprehensive readiness system presents a number of significant challenges. First, there are thousands of new potential reporting entities to include in DRRS, such as Combatant Commands, Joint Task Forces, Services, Active and Reserve component units, installations, depots, ports, and major elements of the industrial base. These entities must not only define and implement reporting based on specific readiness metrics, but they must make their readiness status continuously available in near real time to DRRS. Second, the current National Military Strategy (NMS) makes substantially more complex demands on readiness reporting. Instead of basing readiness on traditional MTW-based scenarios, the NMS asks us to contemplate readiness for an entire range of operational forms, and to design DRRS to assess global readiness impact based on our integrated ability to project and sustain a mix of constructed forces in simultaneous engagements. Finally, Operation Iraqi Freedom and Operation Enduring Freedom sourcing challenges mean that force managers need applications that will query the entire Department for suitable, available organizations to meet current needs. The need for these applications and the underlying data are a top priority for the DRRS project.

The realization of DRRS requires integrating a host of key technologies in order to achieve an information system that supports distributed, collaborative, and dynamic readiness reporting in addition to continuous tool-based assessment. The primary technical goal is the creation of a highly reliable and securely integrated readiness data environment to leverage and extend current readiness information systems. This system is based on intelligent agents, dynamic databases, semantic middleware, and publish/subscribe concepts; providing a logically uniform view into the multiple databases and information sources that feed DRRS. Crucially, through this type of advanced information environment, we dramatically expand the range of readiness queries that DRRS can be able to handle. This environment supports a suite of analysis tools that allow users to explore the consequences of readiness deficiencies in terms of the ability to generate forces and assess transportation feasibility as it pertains to specific scenarios. These tools and tool suites harness the power of the information environment to make possible the kind of quick-turnaround, excursion-driven readiness assessment that is at the heart of DRRS.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE PE 0604774D8Z Defense Readiness Reporting System (DRRS)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	11.784	11.385	11.503	
Current BES/President's Budget (FY 2010)	11.760	11.322	13.121	
Total Adjustments	0	0	0	0
Congressional Program Reductions	0	0	0	0
Congressional Rescissions	0	0	0	0
Congressional Increases	0	0	0	0
Reprogrammings	0	0	0	0
SBIR/STTR Transfer	0	0	0	0
Other	-0.024	-0.063	+1.800	0

Remarks: The funding increase in FY 2010 reflects an adjustment from GSORTs to DRRS to prevent degradation of data accuracy and to web-enable data transfer from Service databases to DRRS.

C. Other Program Funding Summary: None.

D. Acquisition Strategy: N/A

E. Performance Metrics:

- Ability of Combatant Commands to assess current operations and war plans based on actual forces that would be assigned
- Mapping of Joint Capability Areas (JCAs) to joint services and agency tasks to usable total force and mission capability assessments
- Complete the integration of active Guard and Reserve
- Expanding readiness assessments to all DoD organizations, including installations and facilities
- Transition to one readiness reporting system for DoD.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE PE 0604774D8Z Defense Readiness Reporting System (DRRS)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	11.760	11.322	13.121					

A. Mission Description and Budget Item Justification: This funding supports Defense Planning Guidance (DPG) directing the Department of Defense (DoD) components to develop guidelines and procedures for a comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. The Defense Readiness Reporting System (DRRS) establishes a capabilities-based, adaptive, near real-time readiness information system for the DoD. This system is being designed to measure the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. DRRS also hosts information and applications used to support Joint Forces Command (JFCOM), Transportation Command (TRANSCOM), Special Operations Command (SOCOM) and Strategic Command (STRATCOM) in their roles as the Joint Force Providers.

The transformation of readiness reporting into a new comprehensive readiness system presents a number of significant challenges. First, there are thousands of new potential reporting entities to include in DRRS, such as Active and Reserve component units, agencies, Combatant Commanders, installations, depots, ports, and major elements of the industrial base. These new entities must not only define and implement reporting based on specific readiness metrics, but they must make their readiness status continuously available in near real time to DRRS. Second, the current National Military Strategy makes substantially more complex demands on readiness reporting. Instead of basing readiness on traditional MTW-based scenarios, the NMS asks us to contemplate readiness for an entire range of operational forms, and to design DRRS to assess global readiness impact based on our integrated ability to project and sustain a mix of constructed forces in simultaneous engagements. Finally, OIF/OEF sourcing challenges mean that force managers need applications that will query the entire Department for suitable, available organizations to meet current needs. The need for these applications and the underlying data are a top priority for the DRRS project.

The realization of DRRS will require integrating a host of key technologies in order to achieve an information system that will support massive-scale distributed, collaborative dynamic readiness reporting and continuous tool-based assessment. The primary technical goal is the creation of a high-reliability, secure integrated readiness data environment that will leverage and extend current readiness information systems. This system will be based on intelligent agents, dynamic databases, semantic middleware, and publish/subscribe concepts; and will provide a logically uniform view into the multiple databases and information sources that will feed DRRS. Crucially, through this type of advanced information environment, we will dramatically expand the range of readiness queries that DRRS will be able to handle. Coupled to this data environment will be a set of high-speed scenario-oriented tools that support ad hoc queries and drilldown, and an advanced workflow system that can assemble existing and new scenario and assessment tools into high-level task-specific query processes. These tools and tool suites will harness the power of the information environment to make possible the kind of quick-turnaround, excursion-driven readiness assessment that is at the heart of DRRS.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
	11.760	11.322	13.121	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 6

PE 0604774D8Z Defense Readiness Reporting System (DRRS)

FY 2008 Accomplishments:

- Continued development and began fielding of the Global Visibility Tool to support GFM
- Software lifecycle support
- Continued refinement of data architecture
- Data quality improvement
- Data latency improvement
- Continued development and fielding of capabilities identified in FY07
- Continued the fielding of a Language Readiness Index capability
- Continued the integration of National Guard and Reserves to include Title 32 and State mission readiness
- Continued development and fielding of a capability to identify potential Reserve organizations from a pool of remaining force
- Continued fielding enhanced Business Intelligence tools to further enhance ad hoc query capability
- Completed the Distributed Data Environment
- Continue work on integration of current JCA Assessment process as it matures
- Continue the integration with DHS National Preparedness System
- Complete the integration of JTIMS into DRRS
- Began supporting readiness reporting of the Afghanistan National Army

FY 2009 Plans:

- Complete transition from legacy SORTS reporting to DRRS.
- Integrate with GFM tools and applications such as JCRM, CFAST, and JOPES.
- Continue development and fielding of the Global Visibility Tool to support GFM
- Continue Software lifecycle support
- Continue refinement of data architecture
- Data quality improvement
- Data latency improvement
- Continue improvement of readiness reporting of the Afghanistan National Army
- Continue development and fielding of capabilities identified in FY 2008
- Begin development to integrate with Interagency readiness and preparedness systems outside DoD.

FY 2010 Plans:

-
- Continue development and fielding of the Global Visibility Tool to support GFM
- Continue Software lifecycle support
- Continue refinement of data architecture
- Data quality improvement
- Data latency improvement
- Continue development and integration with Interagency readiness and preparedness systems outside DoD.
- Expand readiness reporting capability and integration with coalition forces and allies.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE PE 0604774D8Z Defense Readiness Reporting System (DRRS)			
C. Other Program Funding Summary: N/A	FY 2008	FY 2009	FY 2010	FY 2011

Comment:

D. Acquisition Strategy: N/A

E. Major Performers: Innova Systems, International San Diego, CA DRRS development and implementation.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0604875D8Z - Joint Systems Architecture Development (JSAD)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
Total Program Element (PE) Cost	23.191	14.231	15.247					
P875 Joint Systems Architecture Development (JSAD)	12.577	9.756	8.394					
P876 Portfolio Systems Acquisition (PSA)	10.614	4.475	6.853					

A. Mission Description and Budget Item Justification:

The Quadrennial Defense Review (QDR) and acquisition reform initiatives call for top down, national security strategy-driven capabilities-based planning. Department of Defense (DoD) Instruction 5000.2 and Chairman of the Joint Chiefs of Staff Instruction 3170.01 promulgate capabilities-based requirements and acquisition processes. The JSAD program enables collaborative efforts to achieve these goals. These efforts include providing support to conduct warfighting capability-based analyses; performing assessments of joint capability areas and joint integrating concepts; developing and supporting needed sets of system and system-related data; developing and applying systems engineering methodologies and tools; creating integrated roadmaps to support acquisition investment decisions; and performing assessments of major defense acquisition programs and major automated information systems in a capability area context. Activities in the JSAD project are divided into three areas: capability based analyses, roadmaps, and support tools and guidance. Capability-based analyses provide analysis of the different technology, functionality, and integration impacts of systems on warfighting capability, which forms the basis for initial systems engineering. Acquisition roadmaps guide systems development and associated investment plans. JSAD support tools and guidance initiatives develop systems engineering methods, systems data, and tools, exploit modeling and simulation and architecture efforts to improve DoDs overall assessment capability. These efforts guide the development and improve the testing and fielding of integrated systems of systems in order to achieve Joint mission capabilities.

The QDR also lays out the need for an institutional reorientation or shift in emphasis from organization-specific to enterprise-wide approaches. This means: 1) horizontal integration within the Department and unity of effort through greater interagency collaboration, 2) engaging in a coordinated and portfolio-based approach to planning, programming, budgeting and execution, and 3) significant reforms at the governance, management and execution levels. To accomplish this direction, there needs to be a focused goal and concerted emphasis on shifting from systems acquisition to capabilities-based portfolio management (or portfolio systems acquisition). Starting in FY 2008, this program enables collaborative efforts to implement the QDR direction outlined above in order to achieve portfolio systems acquisition goals. The program is broken up into two focus areas (Portfolio Management and Reform Initiatives) and consolidates work previously performed under various other Program Elements. Funding for Joint Advanced Concepts efforts has been transferred to PE0603200D8Z.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0604875D8Z - Joint Systems Architecture Development (JSAD)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	14.312	14.310	14.682	
Current BES/President's Budget (FY 2010)	23.191	14.231	15.247	
Total Adjustments	8.879	-0.079	0.565	
Congressional Program Reductions				
Congressional Rescissions		-0.079		
Congressional Increases				
Reprogrammings	7.901			
SBIR/STTR Transfer	0.401			
Other	0.577		0.565	

Funds for Joint Advanced Concepts previously funded in this account have been transferred to PE0603200D8Z.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	See below					
09	See below					
10	See below					

Comment:

FY 2008 Accomplishments:

- Published guidebooks for System of Systems Engineering and System Assurance
- Completed Concept Decision Reviews: Integrated Air & Missile Defense, Global Strike-Raid, Joint Lightweight Tactical Vehicle
- Provided Senior Executive oversight of Single Integrated Air Picture (SIAP)
- Advanced Government and Industry cooperation/collaboration e.g. IAMD Summit, CRADAs
- Created strategic framework for earlier senior leader involvement to produce stable , predictable outcomes e.g., new Materiel Development Decision process in DoDI 5000.2
- Provided Special Access Program Multi-Level Security (MLS) facility and collaborative work environment for A&T, JS, and PA&E
- Developed in coordination with Joint Staff and Defense Acquisition University the initial phase of the Congressional Mandated Requirements Mgt Trng Certification Program

FY 2009 Plans:

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 6

0604875D8Z - Joint Systems Architecture Development (JSAD)

- Develop guidance for early application of systems engineering
 - Review and approve Program Protection Plans in support of milestone decisions
 - Guide development of competency-based curriculum for systems and software engineering
 - Develop guidance for integration systems engineering and software engineering
 - Establish Joint Integrated Air and Missile Defense (JIAMD) Advanced Concepts Exploitation (ACE) initiative
 - Publish a Joint Electronic Warfare Baseline for DoD
 - Conduct Capability Portfolio Management Reviews e.g. Force Application, Protection CPMs
 - Provide Management Oversight of the Congressional Mandated Requirements Management Training Certification Program
 - Provide a Special Access Program Multi-Level Security (MLS) collaborative work environment and security structure
- FY 2010 Plans
- Perform systemic analysis of review data to develop predictive diagnostics of program success

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0604875D8Z - Joint Systems Architecture Development (JSAD)					PROJECT P875	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P875 Joint Systems Architecture Development (JSAD)	12.577	9.756	8.394					

A. Mission Description and Budget Item Justification:

The Quadrennial Defense Review (QDR) and acquisition reform initiatives call for top down, national security strategy-driven capabilities-based planning. Department of Defense (DoD) Instruction 5000.2 and Chairman of the Joint Chiefs of Staff Instruction 3170.01D promulgate capabilities-based requirements and acquisition processes. The JSAD project enables collaborative efforts to achieve these goals. These efforts include providing support to conduct warfighting capability-based analyses; performing assessments of joint capability areas and joint integrating concepts; developing and supporting needed sets of system and system-related data; developing and applying systems engineering methodologies and tools; creating integrated roadmaps to support acquisition investment decisions; and performing assessments of major defense acquisition programs and major automated information systems in a capability area context. Activities in the JSAD project are divided into three areas: capability based analyses, roadmaps, and support tools and guidance. Capability-based analyses provide analysis of the different technology, functionality, and integration impacts of systems on warfighting capability, which forms the basis for initial systems engineering. Acquisition roadmaps guide systems development and associated investment plans. JSAD support tools and guidance initiatives develop systems engineering methods, systems data, and tools, exploit modeling and simulation and architecture efforts to improve DoDs overall assessment capability. These efforts guide the development and improve the testing and fielding of integrated systems of systems in order to achieve Joint mission capabilities. Funding for Joint Advanced Concepts efforts has been transferred to PE0603200D8Z.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2008 Accomplishments	12.577			

- Published guidebooks for System of Systems Engineering and System Assurance
- Completed Concept Decision Initiative
- Provided Senior Executive oversight of Single Integrated Air Picture (SIAP)
- Advanced Government and Industry cooperation/collaboration e.g. IAMD Summit, CRADAs
- Created strategic framework for earlier senior leader involvement to produce stable , predictable outcomes e.g., new Materiel Development Decision process in DoDI 5000.2
- Provided Special Access Program Multi-Level Security (MLS) facility and collaborative work environment for A&T, JS, and PA&E
- Developed in coordination with Joint Staff and Defense Acquisition University the initial phase of the Congressional Mandated Requirements Mgt Trng Certification Program

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2009 Plans		9.756		

- Develop guidance for early application of systems engineering
- Review and approve Program Protection Plans in support of milestone decisions
- Guide development of competency-based curriculum for systems and software engineering
- Perform system engineering research at University Affiliated Research Center
- Establish Joint Integrated Air and Missile Defense (JIAMD) Advanced Concepts Exploitation (ACE) initiative

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0604875D8Z - Joint Systems Architecture Development (JSAD)	PROJECT P875
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- Publish a Joint Electronic Warfare Baseline for DoD
- Conduct Capability Portfolio Management Reviews e.g. Force Application, Protection CPMs
- Provide Management Oversight of the Congressional Mandated Requirements Management Training Certification Program
- Provide a Special Access Program multi-level security (MLS) collaborative work environment and security structure for DUSD(A&T)
- Continue advancement of Government and Industry cooperation/collaboration, e.g., IAMD Summit, CRADAs

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2010 Plans			8.394	

- Perform systemic analysis of review data to develop predictive diagnostics of program success

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
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FFRDCs:

	MITRE	Washington DC	Capability Analysis and Software Assessments	
	MITRE	Washington DC	Capability Analysis and Software Assessments	
	IDA	Washington, DC	IAMD Capabilities and Opportunities	Apr 06
	IDA	Washington, DC	IAMD Capabilities and Opportunities	Apr 06

Contractors:

	SAIC/VTC	Washington, DC	Matrix Mapping Tool	
	SAIC/VTC	Washington, DC	Matrix Mapping Tool	
	Camber	Washington, DC	SSM Technical Support	Apr 06
	Camber	Washington, DC	SSM Technical Support	Apr 06
	SAIC	Washington, DC	SSE Technical Support	Apr 06
	SAIC	Washington, DC	SSE Technical Support	Apr 06

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0604875D8Z - Joint Systems Architecture Development (JSAD)				PROJECT P876	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P876 Portfolio Systems Acquisition (PSA)	10.614	4.475	6.853				

A. Mission Description and Budget Item Justification:

The Departments 2005 Quadrennial Defense Review (QDR) lays out the need for an institutional reorientation or shift in emphasis from organization-specific to enterprise-wide approaches. This means: 1) horizontal integration within the Department and unity of effort through greater interagency collaboration, 2) engaging in a coordinated and portfolio-based approach to planning, programming, budgeting and execution, 3) and significant reforms at the governance, management and execution levels. To accomplish this direction, there needs to be a focused goal and concerted emphasis on shifting from acquisition of individual systems to portfolio management (or portfolio systems acquisition). This program enables collaborative efforts to implement the QDR direction outlined above and to achieve portfolio systems acquisition goals. The program is broken up into two focus areas (Portfolio Management and Reform Initiatives) and consolidates work previously performed under various other Program Elements.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY 2008 Accomplishments:	10.614	4.475	6.853

- Prepared the Unmanned Aircraft Systems roadmap
- Participated in Unmanned Systems portfolio reviews
- Supported establishment and conduct of USD-level Capability Development Working Groups
- Provided analytical support to the Homeland Defense Coordinator function within OUSD(AT&L)
- Maintained the Joint Conventional Munitions Database
- Performed analyses in support of Program Management Empowerment and Accountability initiatives
- Performed analyses in support of the Rocket Motor Business Process Review
- Assessed aircraft portfolio in support of decreased cycle times, decreased costs, and improved performance
- Provided analytical support to the Unmanned Aircraft Systems Task Force, Airspace Integration IPT
- Collected Ground-Based Sense-and-Avoid performance data and developed initial safety case for FAA
- Supported development of integrated modeling and simulation activity for use in development of UAS standards for National Airspace Integration
- Performed analysis of Service airworthiness certification processes for Unmanned Aircraft Systems

- FY 2009 - FY 2010 Plans:
- Conduct assessments of Capability Portfolios for cost savings opportunities
 - Expand the Unmanned Aircraft Systems roadmap into an integrated Unmanned Systems roadmap
 - Conduct analyses in support of Maritime Domain Awareness
 - Support implementation of Program Management Empowerment and Accountability initiatives
 - Provide analytical support to the Homeland Defense Coordinator function within OUSD(AT&L)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 6

0604875D8Z - Joint Systems Architecture Development (JSAD)

P876

- Conduct analyses of warfare areas to reduce duplication and identify opportunities for cost savings
- Maintain the Joint Conventional Munitions Database
- Develop Ground Segment Interface standard for Department UAS
- Support development of US/UK Ground Moving Target Indicator (GMTI) collector interoperability

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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Exhibit R-2, RDT&E Budget Item Justification							May 2009	
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6				R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total PE Cost	144.039	152.013	145.052					

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Since its inception in FY 1990, this program element has been used to fund the development of critically needed, high priority Test and Evaluation (T&E) capabilities for joint/multi-Service requirements. The Central Test and Evaluation Investment Program (CTEIP) uses a corporate investment approach to combine Service, Defense, and other government agencies T&E needs, maximize opportunities for joint efforts, and avoid unwarranted duplication of test capabilities. CTEIP focuses investments on projects that will have high productivity returns on investment. Projects under the CTEIP Program Element (PE) support two basic tasks: investments to improve the test capabilities base (Joint Improvement and Modernization (JIM) projects) and development of near-term solutions to test capability shortfalls in support of ongoing operational test programs (Resource Enhancement Project (REP)).

The JIM funds critically needed T&E investments in the major functional areas of test mission command, control, communications and instrumentation; electronic warfare systems; threat and computational simulation test and evaluation; space systems T&E; weapons effects test capabilities; targets; and physical and environmental test capabilities. Examples of project subject matter include: automated data collection, processing, display, and archiving; smart munitions testing; modeling and simulation (M&S); advanced electronic combat systems; low-observable technologies and signature measurements; targets and target control; time-space-position-information; end-game measurement; testing of advanced materials application; test design; and advanced sensors and space systems. CTEIP continues as the focal point for fostering common architectures throughout the test and training communities to enhance the sharing of resources and links between test and training ranges.

CTEIP has provided special focus to institutionalize the use of M&S as a practical test tool; to link ranges through internetting to enhance inter-range and inter-Service cooperation and resource sharing; and, to ensure development and acquisition of common instrumentation necessary for a more efficient test infrastructure.

Analyses of alternative solutions are conducted for each investment project to validate T&E requirements, to define integrated support systems, and to determine overall cost effectiveness of the proposed test investments. The use of Department of Defense (DoD)-wide criteria for requirement validation, prioritization, and risk assessment ensures an effective test resource investment program.

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<p>The REP funds development of near-term solutions for critical ongoing operational tests supporting decisions on major, high priority defense acquisition programs. These unanticipated operational test (OT) capability requirements arise from several sources such as a new threat system identified during OT planning, acquisition of foreign military assets that are critical in determining weapon system operational effectiveness, short timelines between system design maturity and scheduled OT, and emerging technologies and test requirements resulting from operational concept changes mandated by Congress or Director, Operational Test & Evaluation (DOT&E), or system-of-systems testing. Funding these activities under the CTEIP provides the opportunity to coordinate and integrate these near-term test requirements with the total DoD test and evaluation investment planning, and ensures their availability and legacy for other programs that may have similar testing requirements.</p> <p>This Research Category 6.4 PE includes special studies, analyses, and strategic planning related to test capabilities and infrastructure, and supports the development and application of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.</p> <p><u>Program Accomplishments and Plans:</u></p> <p><u>FY 2008 Accomplishments:</u></p> <p><u>JIM Projects:</u></p> <ul style="list-style-type: none">- Completed the Contamination Avoidance Detector Test Suite project to provide test methodology, instrumentation, and test fixtures required to test and evaluate current and developmental CB detector systems over the entire range of expected use conditions.- Completed the Enhanced Flight Termination System project to develop an ultra high frequency (UHF) digital flight termination system for DoD unmanned flight vehicles.- Completed an upgraded capability to evaluate the vulnerability of aircraft to Man Portable Air Defense System threats at an existing Live Fire Test and Evaluation facility.- Completed concept development and initiated system development for the Advanced Communications Environment – Faithful Timeslot Messaging project to adapt the current Joint Communications Simulator antenna pattern and propagation effects to provide timeslot dependent attenuation of Link-16 terminal output.		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity	R-1 Item Nomenclature	
RDT&E, Defense Wide, BA 6	Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Completed the Unmanned Systems Testbed project to provide capabilities for using unmanned systems in training, operational exercises, and test and evaluation. - Completed the Test Capability Workstation / Data Collection Automation Tool project to develop a software suite and tools that focus on Capabilities-Based Test methodology to support operational test planning and the automation of test data collection, analysis, and reporting. - Completed the Joint Mobile Infrared Countermeasures Test System project to provide infrared spectrum test instrumentation for open air ranges. - Completed the Advanced Instrumentation Data & Control System project to develop state-of-the-art instrumentation and control systems to meet DoD T&E requirements for propulsion systems, aerodynamic systems and space systems. - Completed the Re-Locatable Command, Control, and Communications (C3) for Gulf Range Support project to provide re-locatable long-haul and inter/intra-communications to support interoperability and expanded operations at selected Gulf ranges. - Completed concept development and initiated system development for the Horizontal Fast Rise Electromagnetic Pulse (EMP) Pulser project to provide the required EMP testing environment for large aircraft under test. - Completed concept development and initiated risk reduction for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. Continued the Rapid Prototype Initiative to address near term testing requirements for the Future Combat System. - Continued the Joint Gulf Range Complex Upgrade project to provide upgraded range control capabilities at the Gulf Range. - Continued system development of the Towed Airborne Plume Simulator project to provide a capability to test airborne infrared countermeasure systems in a dynamic threat environment, to include realistic clutter background. - Continued concept development for the Integrated Network Enhanced Telemetry project to develop a network-enhanced telemetry capability for T&E ranges and facilities. - Continued the Infrared Sensor Stimulator product improvement and continued system development of the Advanced Radar Environment Stimulator, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing. - Continued the Pacific Range Interoperability Test and Evaluation Capability project to enhance interoperability between test and training assets in the Pacific and other DoD ranges and facilities. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Continued the Range Tactical Data Link and Relay Capability project to provide cross-range interoperability and establish a joint tactical data link test and training capability at selected ranges. - Continued systems development of the Directed Energy Test and Evaluation Capability project to provide improved test and evaluation capabilities for directed energy weapons. - Continued systems development of the Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (JC4ISR) project to develop a capability to test increasingly complex multi-discipline data fusion concepts. - Continued systems development of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate projectile and missile weapons within an 800m by 800m impact area. - Continued system development of the Joint Advanced Missile Instrumentation project to develop and demonstrate time-space-position information, flight termination / safe and arm, and telemetry functions on advanced missile platforms. - Continued systems development for the Next Generation Range Support Aircraft project to provide an improved airborne telemetry capability to support test and evaluation of future weapons systems requiring greater standoff distances and increased telemetry transmission ranges. - Continued the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continued systems development for the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Continued validation of flight test procedures and unmanned aerial vehicle (UAV) operations in the U.S. National Airspace alongside manned aircraft, under the UAV Systems Operations and Validation Program. - Continued the Tri-Service Initiatives and CTEIP support projects. - Continued threat system simulator development to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continued concept development for the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity	R-1 Item Nomenclature	
RDT&E, Defense Wide, BA 6	Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Initiated concept development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. - Initiated the Advanced SAM Hardware Simulator Development – Integrated Technical Evaluation Assessing Multiple Sources (ITEAMS) project to develop a detailed design of a threat radar system using available scientific and technical intelligence data. - Initiated the Joint Gulf Range Complex Test and Training Interdependency Initiative project to explore opportunities for common infrastructure development for test and training participants at the Joint Gulf Range Complex. - Initiated risk reduction for a warhead compatible, universal, subminiature low-cost flight termination system. <p><u>Resource Enhancement Project:</u></p> <ul style="list-style-type: none"> - Completed the fabrication, range integration, and validation on the AGM-88E Anti-Radiation Missile Air Defense Array Test Tool subproject. - Completed the site surveys and installation of the Air and Missile Defense Operational Test Suite. - Completed the system integration, test, and validation on the Chemical Agent Plume Tracking Capability subproject. - Completed the development and acceptance testing on the Consolidated Enterprise Network Test and Evaluation Range subproject. - Completed system acceptance testing on the Infrared Man-Portable Air Defense System Real Time Casualty Assessment Simulator subproject. - Completed test and validation on the Portable Underwater Tracking System subproject. - Completed system integration and test on the Radio Monitoring and Data Analysis System subproject. - Continued the prototype design and development efforts on the Infantry Automatic Rifle Test Resource Unit Fire Hit Discriminator subproject. - Continued development on the Net-Ready Operational Test and Evaluation Support subproject. - Continued the development and completed component and system testing for the Volumetric Influence Processor subproject. - Initiated the development of the Enhanced Communications and Analysis Test System to provide the capability to conduct Operational Test and Evaluation on the MILSATCOM and Defensive Counter Space Systems. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Initiated the development of the Air and Ground Network Waveform Test Capability subproject to provide the 605TH Test and Evaluation Squadron the capability to assess the interoperability of the Tactical Air Control Party Close Air Support System. - Initiated the development of the Digital Remote Interface Vector Equipment System to provide the operational test directors the ability to accurately simulate surface warfare environments to support the Operational Test of the Littoral Combat Ship. - Initiated design efforts on the Submarine Launched Countermeasure Emulator subproject to support the Common Broadband Acoustic Sonar System Spiral IV Torpedo System end-to-end Operational Evaluation. - Initiated system design efforts for the Tactical End-to-End Closed Loop Simulation subproject to support the Operational Assessment of the Assault Directed Infrared Countermeasures Program. <p><u>FY 2009 Plans:</u></p> <p><u>JIM Projects:</u></p> <ul style="list-style-type: none"> - Complete the Directed Energy Test and Evaluation Capability project to provide improved test and evaluation capabilities for directed energy weapons. - Complete concept development and initiate systems development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. - Complete concept development and initiate system development for the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. - Complete the Infrared Sensor Stimulator product improvement and continue development of the Advanced Radar Environment Stimulator, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing. - Complete concept development and initiate systems development for the Integrated Network Enhanced Telemetry project to develop a network-enhanced telemetry capability for T&E ranges and facilities. - Complete the Joint Gulf Range Complex Test and Training Interdependency Initiative project to explore opportunities for common infrastructure development for test and training participants at the Joint Gulf Range Complex. - Complete risk reduction for a warhead compatible, universal, subminiature low-cost flight termination system. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Complete the Range Tactical Data Link and Relay Capability project to provide cross-range interoperability and establish a joint tactical data link test and training capability at selected ranges. - Continue validation of flight test procedures and unmanned aerial vehicle (UAV) operations in the U.S. National Airspace alongside manned aircraft, under the UAV Systems Operations and Validation Program. - Continue the Advanced SAM Hardware Simulator Development – Integrated Technical Evaluation Assessing Multiple Sources (ITEAMS) project to develop a detailed design of a threat radar system using available scientific and technical intelligence data. - Continue the Pacific Range Interoperability Test and Evaluation Capability project to enhance interoperability between test and training assets in the Pacific and other DoD ranges and facilities. - Continue the Joint Gulf Range Complex Upgrade project to provide upgraded range control capabilities at the Gulf Range. - Continue systems development of the Joint C4ISR project to develop a capability to test increasingly complex multi-discipline data fusion concepts. - Continue the Joint Advanced Missile Instrumentation project to develop and demonstrate time-space-position information, flight termination / safe and arm, and telemetry functions on advanced missile platforms. - Continue systems development of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate projectile and missile weapons within an 800m by 800m impact area. - Continue systems development for the Horizontal Fast Rise Electromagnetic Pulse (EMP) Pulser project to provide the required EMP testing environment for large aircraft under test. - Continue system development for the Advanced Communications Environment –Faithful Timeslot Messaging project to adapt the current Joint Communications Simulator antenna pattern and propagation effects to provide timeslot dependent attenuation of Link-16 terminal output. - Continue risk reduction for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. Complete the Rapid Prototype Initiative to address near term testing requirements for the Future Combat System. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity	R-1 Item Nomenclature	
RDT&E, Defense Wide, BA 6	Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Continue the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continue systems development for the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Continue the Tri-Service and CTEIP support projects. - Continue threat system simulator development efforts to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continue systems development for the Next Generation Range Support Aircraft provide to provide an improved airborne telemetry capability to support test and evaluation of future weapons systems requiring greater standoff distances and increased telemetry transmission ranges. - Continue system development of the Towed Airborne Plume Simulator project to provide a capability to test airborne infrared countermeasure systems in a dynamic threat environment, to include realistic clutter background. - Initiate the Range Element - Network Enterprise Technology project to provide the Combat Readiness Training Center and the 46th TW with multi-mission critical data link capabilities to support testing of net-centric aircraft and weapons. - Initiate the Gulf Range Mobile Instrumentation Capability project to provide new distributed testing capabilities. <p><u>Resource Enhancement Project:</u></p> <ul style="list-style-type: none"> - Complete the shipboard installation and at-sea verification efforts of the Digital Remote Interface Vector Equipment System. - Complete system integration and testing for the Net-Ready Operational Test and Evaluation Support subproject. - Complete the development and demonstration efforts and prototype validation testing on the Infantry Automatic Rifle Test Resource Unit Fire Hit Discriminator subproject. - Complete verification, validation and accreditation efforts for the Volumetric Influence Processor subproject. - Continue manufacturing efforts and subsystem level testing on the Submarine Launched Countermeasure Emulator subproject. - Continue the development on the Tactical End-to-End Closed Loop Simulation subproject. - Continue the development of the Enhanced Communications and Analysis Test System to provide the capability to conduct Operational Test and Evaluation on the MILSATCOM and Defensive Counter Space Systems. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Initiate the development of the Precision Target Signatures subproject to support Future Combat System of Systems force-on-force operational test events. - Initiate the development of the Net-Centric Test Agent Capability subproject to provide the capability to support the Operational Test and Evaluation of the Net-Centric Enterprise Service. - Initiate the development of the Threat Model Analysis subproject to support the Initial Operational Test and Evaluation for the F-22 program. - Initiate the development of the Geometric Automated Location System Night Vision Capability subproject to provide the capability for the Joint Cargo Aircraft to demonstrate aerial delivery of multiple cargo and personnel. <p><u>FY 2010 Plans:</u></p> <p><u>JIM Projects:</u></p> <ul style="list-style-type: none"> - Complete systems development of the Joint C4ISR project to develop a capability to test increasingly complex multi-discipline data fusion concepts. - Complete systems development of the Soft Impact Location Capability project to provide the necessary instrumentation, signal processing, communication, and data processing capabilities to detect and locate projectile and missile weapons within an 800m by 800m impact area. - Complete systems development for the Horizontal Fast Rise Electromagnetic Pulse (EMP) Pulser project to provide the required EMP testing environment for large aircraft under test. - Complete system development for the Advanced Communications Environment –Faithful Timeslot Messaging project to adapt the current Joint Communications Simulator antenna pattern and propagation effects to provide timeslot dependent attenuation of Link-16 terminal output. - Complete system development of the Towed Airborne Plume Simulator project to provide a capability to test airborne infrared countermeasure systems in a dynamic threat environment, to include realistic clutter background. - Complete risk reduction and initiate systems development for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity	R-1 Item Nomenclature	
RDT&E, Defense Wide, BA 6	Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Continue the Joint Advanced Missile Instrumentation project to develop and demonstrate time-space-position information, flight termination / safe and arm, and telemetry functions on advanced missile platforms. - Continue systems development for the Objective Helicopter Icing Spray System project to provide an enhanced capability to perform in-flight icing and rain testing for low-speed air vehicles. - Continue system development for the Space Threat Assessment Testbed project to provide a capability to conduct subsystem and system level combined natural and man-made space environmental effects testing of critical space assets. - Continue development of the Advanced Radar Environment Stimulator, under the Joint Installed Systems Test Facility Product Improvements project, to provide improved installed systems capabilities needed to support next generation aircraft testing. - Continue systems development for the Integrated Network Enhanced Telemetry project to develop a network-enhanced telemetry capability for T&E ranges and facilities. - Continue the Test and Training Enabling Architecture Software Development Activity to promote integrated testing and simulation-based acquisition through the use of a logical range consisting of distributed live, virtual, and constructive elements tied together by a common architecture. - Continue systems development for the Hypersonic Propulsion Test Capability project to provide a variable Mach number aerodynamic propulsion test capability at the Arnold Engineering Development Center. - Continue the Tri-Service and CTEIP support projects. - Continue threat system simulator development efforts to improve integration, reduce potential duplication in threat and target development, and ensure that accurate, cost-effective representations of threat systems are available to support testing. - Continue systems development for the Next Generation Range Support Aircraft provide to provide an improved airborne telemetry capability to support test and evaluation of future weapons systems requiring greater standoff distances and increased telemetry transmission ranges. - Initiate system development for a warhead compatible, universal, subminiature low-cost flight termination system. - Initiate development of a Joint Urban Test Capability to provide capabilities for testing in a realistic urban environment. - Initiate the Multi-Level Secure (MLS) Joint/Coalition Network Environment project to develop a standardized, DoD multi-level secure and cross-domain data management T&E network architecture. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity	R-1 Item Nomenclature	
RDT&E, Defense Wide, BA 6	Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
<ul style="list-style-type: none"> - Initiate the Joint Unmanned Aerial Systems (UAS) Mission Environment project to develop a capability for testing UAS in realistic system of systems environments. - Initiate the Mid-Pressure Arc Heated Facility project to provided expanded capabilities in arc-heated facilities to allow longer run times and increased enthalpy range testing. - Initiate the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System project to provide an end-to-end ground test system enabling complete testing of IRCM systems. - Initiate the Next Generation Electronic Warfare Environment Generator project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. <p><u>Resource Enhancement Project:</u></p> <ul style="list-style-type: none"> - Complete integration testing for the Enhanced Communications and Analysis Test System subproject. - Complete validation testing for the Precision Target Signatures subproject. - Complete project demonstration for the Net-Centric Test Agent Capability subproject. - Complete verification and validation efforts for the Submarine Launched Countermeasure Emulator subproject. - Complete development of the Threat Model Assessment Program subproject. - Complete the end-to-end closed loop verification, validation and accreditation for the Tactical End-to-End Closed Loop Simulation subproject. - Initiate development of instrumented facilities to evaluate our next generation of sensors, weapons, platforms, and C4ISR systems in a realistic urban environment. - Initiate development of hardware simulators to test missile warning systems of new generation electronic warfare (EW) suites in a dynamic environment. - Initiate the development of non-intrusive instrumentation to address near term OT capability shortfalls to evaluate advanced sensor system performance in harsh environments. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009	
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6		R-1 Item Nomenclature Central Test and Evaluation Investment Program (CTEIP), PE 0604940D8Z	
B. (U) <u>PROGRAM CHANGE SUMMARY</u>			
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget:	146.888	133.852	136.168
Current President's Budget:	144.039	152.013	145.052
Total Adjustments:	-2.849	18.161	8.884
Congressional Program Adjustments:		-0.839	
Congressional Rescissions:			
Congressional Increases:		19.000	
Program Adjustments:			10.000
Other Program Adjustments:	-2.849		-1.116
C. (U) <u>OTHER PROGRAM FUNDING</u> NA			
D. (U) <u>ACQUISITION STRATEGY</u> NA			
E. (U) <u>PERFORMANCE METRICS</u>			
Percentage of CTEIP projects that were developed and delivered to the DoD test community over the past five years.			

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE
0604943D8Z - Thermal Vicar

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
943 Thermal Vicar	9.235	9.605	9.045				

A. Mission Description and Budget Item Justification:

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	9.385	9.658	7.927	
Current BES/President's Budget (FY 2010)	9.235	9.605	9.045	
Total Adjustments	-0.150	-0.053	1.128	
Congressional Program Reductions				
Congressional Rescissions		-0.053	-0.126	
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.131			
Other	-0.019		1.254	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0604943D8Z - Thermal Vicar					PROJECT P943	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P943 Thermal Vicar	9.235	9.605	9.045					

A. Mission Description and Budget Item Justification:
 This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP at (703) 697-1282.

B. Accomplishments/Planned Program: Not Applicable.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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Exhibit R-2, RDT&E Budget Item Justification						May 2009		
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6		R-1 Item Nomenclature Joint Mission Environment Test Capability (JMETC), PE 0605100D8Z						
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Total PE Cost	6.732	8.785	9.455	0.00	0.00	0.00	0.00	0.00

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Joint Mission Environment Test Capability (JMETC) Program provides the infrastructure for distributed testing of systems during development. The JMETC program implements the infrastructure capabilities defined in the Testing in a Joint Environment Roadmap to provide Acquisition Program Managers a robust nation-wide capability to “Test Like We Fight.” JMETC provides a persistent distributed test and evaluation (T&E) capability that otherwise would not be readily available to Service/Component development programs. This program is funded within the RDT&E Management Support Budget Activity because it is intended to provide test capability in support of RDT&E programs.

JMETC creates a common corporate capability to link live systems with virtual and constructive representations to generate a realistic joint mission test environment for the system(s) being tested. JMETC is a widely applicable, persistent, service provider for Department acquisition and net-centric programs. Key JMETC products include readily available connectivity over existing Department networks, standard data transport solutions, tools and utilities for planning and conducting distributed integrations, and a reuse repository. This common integration capability, through the use of the Test and Training Enabling Architecture (TENA), provides compatibility between JMETC and the Joint National Training Capability (JNTC), streamlining reuse of technical resources across test and training communities. In the future, this will enable combined test and training exercises. JMETC capabilities will eventually migrate to a mature Global Information Grid (GIG) Defense Information Systems Network Core.

By linking distributed facilities, JMETC allows customers to efficiently evaluate their warfighting capability in a realistic joint environment. This enables a customer-defined joint mission test environment for systems engineering and testing, extensible to training and experimentation, in a timely and cost effective manner.

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Joint Mission Environment Test Capability (JMETC), PE 0605100D8Z	
<p>JMETC's institutional funding builds, maintains, and operates the JMETC, and pays for persistent availability of national connectivity for testing; data communications middleware; identification of interface standards; common software tools and components; and a data archive and reuse repository. It also funds JMETC program management, facilities, equipment, operating costs, and special studies and analysis related to test capabilities and infrastructure. Key attributes of the JMETC include: persistency; interoperability; reuse; various combinations of distributed capabilities (reconfigurable infrastructure to meet customer requirements); modeling and simulation (M&S) linkage; Live-Virtual-Constructive (LVC) test resource integration; and common support to both Service and Joint needs. System engineering, training, and experimentation all benefit from a corporate JMETC developed for T&E.</p> <p>The Test Resource Management Center (TRMC) is the Department's lead for the JMETC program, and oversees both its development and its operations.</p> <p><u>Program Accomplishments and Plans:</u></p> <p><u>FY 2008 Accomplishments:</u></p> <ul style="list-style-type: none"> - Provided support to customer events, particularly InterTEC (Jun 08, Aug 08), and Future Combat Systems (FCS) (Aug 08). Assisted the Net-Enabled Command Capability (NECC) Program with distributed test tools and expertise for planning their distributed events. JMETC performed and tested the integration of required facilities for the Joint Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Interoperability Test and Evaluation Capability (InterTEC) and Future Combat System (FCS) combined test organization (CTO) events. - Assumed former Joint Distributed Engineering Plant (JDEP) functions supporting connectivity and distributed test infrastructure for the SIAP program. Established the infrastructure needed to support the Single Integrated Air Picture (SIAP) program event in Nov 09. JMETC conducted a risk reduction event series (Mar to Jun 08) to ensure that the network systems and product infrastructure is capable of supporting the stringent SIAP distributed test requirements going forward. - Continued collaboration with the Air Force Integrated Collaborative Environment (AF-ICE) to leverage efficiencies through use of the provided JMETC products and services infrastructure. - Continued coordination discussion and plans with the Navy Distributed Engineering Plant (DEP) for supporting their distributed events where connectivity outside of the Navy is required. JMETC and Navy DEP are planning a pilot distributed test event that will identify and verify future infrastructure leverage possibilities. - Continued providing requirements analysis support to acquisition programs such as NECC, Small Diameter Bomb, and Multi-mission Maritime Aircraft (MMA). 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Joint Mission Environment Test Capability (JMETC), PE 0605100D8Z	
<ul style="list-style-type: none"> - Worked with the JMETC Users Group to facilitate development and incorporation of the highest priority improvements to the distributed test software and standard interfaces to meet customer requirements. JMETC conducted three Users Group meetings in FY08 with an average of 200 participants from all DoD Components. - Continued development of the JMETC Reuse Repository to store software interfaces, tools, utilities, and test metadata making all resources available to the test community for reuse. - Continued to develop customer support providing acquisition programs and test ranges with technical assistance on JMETC capabilities, standards, interfaces, tools, available nodes, and expertise in planning and conducting distributed tests. - Expanded the JMETC Virtual Private Network (VPN) from 8 sites (established in FY07) to 33 sites to meet customer requirements. The appropriate coordination was completed to assure continued use of the Secure Defense Research and Engineering Network (SDREN) as well as the Joint National Training Capability (JNTC)- sponsored network aggregator located at Patuxent River Naval Air Station. This action provides the capability of bridging the JMETC VPN to sites on other classified networks (i.e., JNTC Joint Training and Experimentation Network (JTEN), DISN Secret Internet Protocol Router Network (SIPRNET), AF-ICE Enclave, Army Test and Evaluation Command (ATEC) Test and Integration Network (ATIN), and other DREN classified enclaves). Coordination was initiated with the High Performance Computing Modernization Office (HPCMO) to develop plans to transition the JMETC VPN to the Defense Information System Network Core in the future when the SDREN also makes the transition. - Continued conducting a technical watch for commercially available software tools to reinforce the current suite of JMETC standard distributed test support tools. - Initiated, through the JMETC Users Group, the selection process for development and testing of “best-of-breed” distributed test tools for application by the DoD T&E Community. <p><u>FY 2009 Plans:</u></p> <ul style="list-style-type: none"> - Complete initial development and upgrade the Reuse Repository to store software interfaces, tools, utilities, and test metadata making all available to the DoD T&E Community for reuse. - Provide support to major customer distributed test events such as SIAP Joint Combined Hardware-in-the-loop Evaluation 5 (JCHE 5), InterTEC Spiral 3 Integration Test, and Joint Expeditionary Force Experiment 09-01, 02, and 03. Additionally, provide distributed test support for 3-10 smaller test activities. Assist the NECC program with distributed test tools and expertise for planning their distributed events. - Continue outreach efforts to new acquisition programs that must demonstrate compliance with Net-Ready Key Performance Parameter requirements. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Joint Mission Environment Test Capability (JMETC), PE 0605100D8Z	
<ul style="list-style-type: none"> - Continue planning support to on-going programs, particularly SIAP, CVN-21, FCS, NECC, and InterTEC. Provide planning support to Joint Strike Fighter (JSF) and MMA for their distributed test events. - Continue collaboration with AF-ICE and Navy DEP distributed test events to leverage efficiencies through use of the JMETC infrastructure products and services. - Expand the JMETC VPN from 33 sites by 2 to 7 sites in response to customer requirements and the potential for maximizing reuse. Continue coordination with HPCMO to develop a plan to transition to the DISN Core once the DISN Core meets the requirements for the SDREN to make the transition. - Continue “best-of-breed” distributed test tools selection process in coordination with the JMETC Users Group. In turn, complete plans and resource requirements determinations to sustain the selected tools. <p><u>FY 2010 Plans:</u></p> <ul style="list-style-type: none"> - Provide distributed test support for 3-4 major customer events such as NECC, SIAP, InterTEC Spiral 3, FCS, MMA, and CVN-21, and 3-10 smaller test activities. Assist customers with distributed test tools and expertise for planning their distributed events. - Continue outreach efforts to new acquisition programs that must demonstrate compliance with Net-Ready Key Performance Parameter requirements. - Continue planning support to on-going acquisition programs, particularly SIAP, CVN-21, FCS, NECC, JSF, and InterTEC. - Provide distributed test planning support to other customers for their distributed test events. - Continue collaboration with AF-ICE and Navy DEP distributed test events to leverage efficiencies through use of the JMETC infrastructure. - Continue to support and upgrade the JMETC Reuse Repository to store software interfaces, tools, utilities, and test metadata making all available to the DoD test community for reuse. - Sustain the JMETC VPN 35-45 sites and expand as necessary to meet customer requirements in full consideration of maximizing the potential for reuse. Continue coordination with HPCMO to develop plans to transition to the GIG (DISN Core) when the DISN Core meets the requirement for the SDREN to make the transition. - Continue “best of breed” distributed test tools selection process in coordination with the JMETC Users Group and complete plans and resource requirements determinations to sustain the “selected” tools. 		

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Exhibit R-2, RDT&E Budget Item Justification		May 2009	
Appropriation/Budget Activity RDT&E, Defense Wide, BA 6	R-1 Item Nomenclature Joint Mission Environment Test Capability (JMETC), PE 0605100D8Z		
B. (U) <u>PROGRAM CHANGE SUMMARY:</u>			
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget:	6.865	8.834	9.523
Current President's Budget:	6.732	8.785	9.455
Total Adjustments:	(0.133)	(0.049)	0.068
Congressional Program Adjustments:		(0.049)	
Congressional Rescissions:			
Congressional Increases:			
Other Program Adjustments:	(0.133)		0.068
C. (U) <u>OTHER PROGRAM FUNDING:</u> N/A.			
D. (U) <u>ACQUISITION STRATEGY:</u> N/A.			
E. (U) <u>PERFORMANCE METRICS:</u>			
<ul style="list-style-type: none"> - Expansion of initial capability to support major acquisition program test requirements, providing distributed capability to test systems and demonstrating required joint capability. - Successful use of integration software compatible with the JNTC and Joint Training infrastructure. - Number of test sites/locations that are reused to support distributed tests using the JMETC infrastructure. 			

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
Total Program Element (PE) Cost	30.199	36.319	44.760					
P421 Technical Studies, Support & Analysis	30.199	36.319	32.468					
Global Theater Security Cooperation Management Information Systems			12.292					

A. Mission Description and Budget Item Justification:

This program is a key source of funding for the Office of the Secretary of Defense and the Joint Staff for studies, analyses, management, and technical support efforts to improve and support policy development, decision making, management and administration of DoD programs and activities. Studies and analyses will examine current and alternative policies, plans, operations, strategies and budgets, and are essential for understanding and gaining insight into the ever-changing multifaceted international, political, technological, economic, military, and acquisition environments in which defense decisions and international opportunities take place. The need for independent analyses has become particularly acute with the evolution of requirements for planning the reconstitution of assets affected by combat and non-combat operations, and there is a strong need to incorporate the effects of operational analyses in force planning assessments. With the persistently complex security, threat, and economic environment, the need for objective analyses and forward looking planning for the mid and long-term is vital.

Beginning in FY 2010, this program element includes the budget request for the Global Theater Security Cooperation Management Information Systems (TSCMIS) program, which is an existing program that will be executed by the Joint Staff separately from the Technical Studies, Support, and Analysis program. The Global Theater Security Cooperation Management Information Systems program responds to OSD's Guidance for Employment of the Force so that Combatant Commanders, Military Department Chiefs, CSA Directors, and applicable Defense Agency and Field Activity Directors are able to use a tracking mechanism to account for their steady-state activities that is accessible to other DoD components. Together these tracking mechanisms will provide a global view of all steady-state activities conducted by DoD components. The intent of this program is to encourage further development of tracking mechanisms in order to achieve full visibility of Defense Department activities.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	34.958	34.520	32.916	
Current BES/President's Budget (FY 2010)	30.199	36.319	44.760	
Total Adjustments	-4.759	1.799	11.844	
Congressional Program Reductions				
Congressional Rescissions		-0.201		
Congressional Increases		2.000		
Reprogrammings	-3.813			
SBIR/STTR Transfer	-0.875			
Other	-0.071		11.844	

There were congressional additions in FY 2008 for the Capabilities Study for Improvised Explosive Devices Study (\$1.0 million), Countering Missile-Related Technology Proliferation Study (\$2.0 million), and Foreign Test Range Analysis (\$1.0 million).

There were congressional additions in FY 2009 for the Center for Technology and National Security Policy at the National Defense University (\$1.2 million) and Defense Support to Large Scale Disaster preparedness (\$800K).

The FY 2010 budget amount reflects placement of the Global Theater Security Cooperation Management Information System program in this program element.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

PE 0605104D8Z Technical Studies, Support & Analysis

FY 2010 BA: \$44,760K FY 2010 BA Assoc w/Metrics: \$44,760K Percent FY 2010 BA Assoc w/Metrics: 100%

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE

0605104D8Z - Technical Studies, Support & Analysis

This program conducts approximately one-hundred fifty actions per fiscal year to support a wide variety of dynamic goals of the Department and is designed to encourage a collaborative research approach among the components of OSD and the Joint Staff. The research and study projects supported by this program are closely integrated with the strategic goals of the Department of Defense. The focus of studies varies across a wide spectrum including weapons systems cost analysis, strengthening and leveraging alliances, human resource and military personnel management, examination of innovative technologies, application of technology to operational doctrine, and many other issues of timely importance. Most of the actions are long to intermediate-range in outlook, and the program allows high-level managers to plan and to guide their research toward meeting their highest-priority goals and other high-level guidance such as the President's Management Agenda and the National Security Strategy of the United States of America.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis				PROJECT P421	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P421 Technical Studies, Support & Analysis	30.199	36.319	44.760				

A. Mission Description and Budget Item Justification:

This program is a key source of funding for the Office of the Secretary of Defense and the Joint Staff to conduct joint studies, analyses, management, and technical support efforts, to improve and support policy development, decision making, management and administration of DoD programs and activities. Studies and analyses will examine current and alternative policies, plans, operations, strategies and budgets, and are essential for understanding and gaining insight into the ever-changing multifaceted international political, technological, economic, military, and acquisition environments in which defense decisions and international opportunities take place. The need for independent analyses has become particularly acute with the evolution of requirements for planning the reconstitution of assets affected by combat and non-combat operations, and there is a strong need to incorporate the effects of operational analyses in force planning assessments. With the persistently complex current security, threat, and economic environment, the need for objective analyses and forward looking planning for the mid and long-term is vital.

Beginning in FY 2010 this program element includes funding for the Global Theater Security Cooperation Management Information Systems (TSCMIS) Program, which is a separate program from the OSD Technical Studies, Support & Analysis program. TSCMIS is an existing program which provides a global view of all steady-state activities conducted by DoD components and enables that information to be accessible by other DoD components. Proposed enhancements to TSCMIS will enable all of the Services and Combatant Commands to access information in this system and will allow the incorporation of data provided by other interagency partners.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Technical Support to OSD and the Joint Staff: FY 2008 Program	30.199		

Technical Support for USD(Acquisition, Technology & Logistics):

Studies and analyses of:

Rotary wing platform portfolio analyses, aviation system performance and interoperability, rocket motor propulsion systems analyses, unmanned systems investment planning, joint conventional munitions requirements, conventional munitions fuze technologies, weapons systems safety and reliability improvement, hard target defeat capabilities and collateral damage avoidance, NATO materiel stockpile planning, incorporating modeling and simulation design tools into the acquisition process, amphibious warfare shipbuilding and logistical requirements, joint battle management command and control, joint airborne electronic attack capabilities, allied naval warfare capabilities, homeland defense and civil support integration and interagency cooperation (in conjunction with NORTHCOM), developing metrics to forecast acquisition program risk, capabilities detection of weapons of mass destruction, acquisition strategy for homeland defense, DoD energy strategy and incorporating energy costs into the acquisition process, integrated air and missile defense capabilities operational assessment and risk management, joint net-centric operations functional solutions analyses, improving efficiency of weapons system testing, defense industry acquisitions and mergers analyses, effects of restructuring on critical defense industries, globalization in the defense industry and effects of the use of non-US suppliers, export control policy, international armaments cooperation, logistical supply chain operations, analyses of domestic sources of strategic materials, development of pilot maintenance and transportation concepts, various tasks supporting numerous Defense Science Board task forces, rapid acquisition process standards, international cooperative R&D programs, NATO policy planning, small business investment strategy, and DoD relations with small businesses

Technical Support for the Director, Program Analysis & Evaluation: Studies and analyses regarding the following areas:

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Space situational awareness, Joint Light Tactical Vehicle (JLTV) performance, expeditionary seabasing capability, force and infrastructure requirements, aviation tactical networking, analyses of country-specific and sub-region-specific stability operation campaign plans, measuring the impact of allied and enemy strategic communications, shaping rising military powers, Littoral Combat Ship (LCS) anti-submarine warfare capabilities, analytical studies for independent cost estimates, medical cost growth analyses, technical analysis of aviation and ground systems and platforms, mobility capabilities analysis, software cost estimation techniques, program earned value management performance, costing the benefits of competition in acquisition, and operations and maintenance program cost analyses

Technical Support for the USD(Policy): Studies and analyses regarding the following areas:

Policy and defense programs and initiatives in the Asia-Pacific Region, roles and missions of DoD components, various operational assessments in warfighting operations, optimizing exploitation of intelligence collection, DoD organization and management for national security in space, support requirements of allied forces and mitigation of vulnerabilities, responses to asymmetric adversary military strategies, mapping jihadist networks in allied countries, enhancing defense cooperation between France and NATO, evaluations of the defense capabilities of Poland, enhancing and evaluating DoD humanitarian assistance programs, support to international negotiations on cluster munitions, countering jihadist propaganda, and strategic-level simulations of areas of interest for senior members of the executive and legislative branches

Technical Support for the USD(Personnel & Readiness): Studies and analyses regarding the following areas:

Improving strategy in recruiting of older youths, effects of various factors on reserve force recruiting, science and technology education policies and future requirements, stress on military families, DoD retirement policies, improving foreign language proficiency, attrition rates among various categories of high school graduates, modeling of the effects of geopolitical events on recruiting costs, impacts of stop-loss policies on unit readiness and individual career decisions, general and flag officer management, sexual assault and domestic violence prevention, and evaluation of personnel requirements by the military services

Technical Support for the ASD(Networks and Information Integration) and USD(Intelligence): Studies and analyses regarding the following areas:

Stability operations information sharing architecture, DoD use of foreign PNT (positioning, navigation, and timing) sources for conducting military operations, emerging technologies in information assurance, threats to key national command and control infrastructure, and information technology acquisition policy

Technical Support for the Joint Staff conducting joint research with OSD: Studies and analyses regarding the following areas:

Studies and analyses conducted with OSD supporting net-centric operations environment planning, joint supply chain architecture, global munitions distribution, rebalancing special operations forces and general purpose forces, and joint theatre warfare simulation to conduct operational assessments and understand resource requirements

Program additions by Congress:

Capabilities Study for Improvised Explosives Detection (\$1.0 million)

Countering Missile-Related Technology Proliferation (\$2.0 million)

Foreign Test Range Analysis-Measurement and Signature Intelligence (\$1.0 million)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis	PROJECT P421
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Technical Support to OSD and the Joint Staff: FY 2009 Program		36.319		

Technical Support for USD(Acquisition, Technology & Logistics): New and continued studies and analyses of:

Technological capabilities of rotary wing systems, rocket motor development and acquisition, unmanned terrestrial and air systems, joint conventional munitions requirements planning, joint service fuze technology, hard and buried target defeat, improving use of modeling and simulation tools in acquisition and weapons system testing, amphibious warfare programmatic requirements, homeland defense and civil support coordination, test and evaluation capabilities, DoD energy policy, weapons systems safety and reliability, NATO materiel stockpile planning, allied naval capabilities, arms control analyses and treaty verification options, identifying acquisition program risk, the unmanned vehicle industrial base, effects of global defense industry trends, defense industry acquisition and merger policy, industrial base assessments of critical defense sectors, facilitation of defense industry competition and technology investment by industry, supply chain modernization planning, integration of supply chain commercial practices into DoD logistics systems, tasks supporting various Defense Science Board task forces, evolving technologies and the acquisition process, international cooperative R&D programs, NATO policy planning, small business investment strategy, and DoD relations with small businesses

Technical Support for the Director, Program Analysis & Evaluation: Studies and analyses regarding the following areas:

Capabilities for non-traditional military challenges, irregular warfare capabilities, force structure changes, building analytical baselines in support of the Analytical Agenda and Multi-Service Force Deployment baselines, technical studies and analysis to support independent cost estimates, alternative weapons systems configurations and force levels, C4ISR capabilities and information assurance, force readiness analyses, homeland defense and consequence management scenarios, shipbuilding infrastructure requirements, weapons systems performance and cost-effectiveness analyses, energy security policy, and analyses of the long-term strength and affordability of the defense program

Technical Support for the USD(Policy): Studies and analyses regarding the following areas:

Asia-Pacific basing and defense policy cooperation, reconstitution requirements for military forces, organization and missions of DoD military and civilian manpower assets, protection of space-based assets, evaluations of various Capability Portfolio Managers and Joint Capability Areas, improving the ability of DoD to build security partnerships, projected US AFRICOM capabilities and requirements, counter-proliferation strategy, effects of resource requirements on foreign defense strategy, development of defense planning scenarios and improving contingency planning, and strategic-level simulations of areas of interest for legislative and executive branch decision-makers

Technical Support for the USD(Personnel & Readiness): Studies and analyses regarding the following areas:

Recruiting and retention of active and reserve component members, advancing foreign language capabilities, general/flag officer personnel requirements, improving family counseling services and the impact of such programs on families and member retention, optimizing the effects of compensation on personnel inventory, strengthening care of wounded personnel, evaluating alternate approaches to managing the force, and assessing the impact of foreign-born scientists and engineers on national security programs

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Technical Support for the ASD (Networks & Information Integration) and USD(Intelligence): Studies and analyses regarding the following areas:
 Tactical edge services architecture evolution, GIG (global information grid) mission assurance architecture and strategy, ongoing evaluations of command and control capabilities to support net-centric operations, Regional Joint Intelligence Training Facility (RJITF) System requirements, Civilian Foreign Area Officer (CIVFAO) Program analyses, improvement of defense intelligence training and education capabilities, architectural improvements to counterintelligence and human intelligence capabilities, investment strategies to improve the survivability of the ISR architecture and optimize ISR collection mission management, and architectural improvements to improve capabilities to access and share national and tactical intelligence information in near real-time

Technical Support for the Joint Staff conducting joint research with OSD:
 Studies and analyses with OSD supporting evolving warfighting issues in global counterterrorism and stability operations, DoD information assurance, adaptive planning human resource strategy, means to dissuade potential adversaries from obtaining weapons of mass destruction, improving DoD collaborative capabilities, DoD response to pandemics and natural disasters, and various studies directed by the Program Decision Memorandum and the Guidance for Development of the Force

Program additions by Congress:
 Center for Technology and National Security Policy at the National Defense University (\$1.2 million)
 Defense Support to Large-Scale Disaster Preparedness (\$0.8 million)

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Technical Support to OSD and the Joint Staff: FY 2010 Plans			32.468

Technical Support for USD(Acquisition, Technology & Logistics): Studies and analyses regarding the following areas:
 Rotary wing aviation capabilities support, innovative shipbuilding designs, electronic warfare, joint conventional munitions requirements planning, joint service fuze technology, hard and deeply buried targets, homeland defense and civil support coordination, domestic industrial base capabilities, mitigating systems integration risk, maritime domain awareness, test and evaluation capabilities, DoD energy policy in acquisition planning, weapons systems safety and reliability, NATO materiel stockpile planning, Littoral Combat Ship mission requirements, identification of new commercial tools for systems engineering, rocket motor development and acquisition, treaty compliance analyses, automatic air collision avoidance technologies in manned and unmanned systems, identifying acquisition program risk, shipbuilding planning and acquisition, supply chain modernization planning, integration of supply chain commercial practices into DoD logistics systems, technical support to various Defense Science Board task forces, evolving technologies and the acquisition process, international cooperative R&D programs, NATO policy planning, programmatic issues in the areas of technology transfer and foreign disclosure, small business investment strategy, and DoD relations with small businesses

Technical Support for the Director, Program Analysis & Evaluation: Studies and analyses regarding the following areas:
 Force structure and weapons systems performance and cost effectiveness, capabilities for non-traditional military challenges and irregular warfare capabilities, building analytical baselines in support of the Analytical Agenda and Multi-Service Force Deployment baselines, technical studies and analysis to support independent cost estimates, alternative weapons systems configurations and force levels, operational availability of assets, DoD energy security policy, and analyses of the long-term strength and affordability of the defense program

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis	PROJECT P421
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Technical Support for the USD(Policy): Studies and analyses regarding the following areas:
 Various national security policy reviews as required by the future global security environment, recommendations and analysis regarding military posture, maintaining security relationships with allies, operational assessments of irregular warfare capabilities, potential geopolitical impact of climate change and its effects on DoD planning, DoD space policy, effects of energy cost constraints on DoD planning and operations, and strategic-level simulations of areas of interest for legislative and executive branch decision-makers

Technical Support for the USD(Personnel & Readiness): Studies and analyses regarding the following areas:
 Effects of incentives and other recent recruiting strategies on personnel readiness and retention, improving DoD foreign language capabilities, long-term impact of deployments on personnel retention, evaluating effectiveness of efforts to balance DoD manpower supply with demand, civilian personnel management and retention, mitigating hardships among military families, management of reserve components, and providing responses to congressional requests and directives as required

Technical Support for the ASD (Networks & Information Integration) and USD(Intelligence): Studies and analyses regarding the following areas:
 Network approaches and technical solutions in support of net-centric transformation, development of baseline metrics and evaluation approaches to ensure appropriate systems support for defense and national leadership, development of approaches for ensuring adequate electromagnetic spectrum access for military operations, Civilian Foreign Area Officer (CIVFAO) Program requirements, decision based analyses to counter irregular warfare networks, and Optical Non-Imaging Infrared (ONIR) ground architecture analyses

Technical Support for the Joint Staff conducting joint research with OSD:
 Studies and analyses with OSD supporting evolving warfighting issues in counterterrorism and stability operations, DoD information assurance, adaptive planning human resource strategy, means to dissuade potential adversaries from obtaining weapons of mass destruction, improving DoD collaborative capabilities, DoD response to pandemics and natural disasters, and various studies directed by the Program Decision Memorandum and the Guidance for Development of the Force

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Global Theater Security Cooperation Management Information Systems Program			12.292

Global Theater Security Cooperation Management Information Systems (TSCMIS) Program. This item is a separate requirement from the Technical Studies, Support, and Analysis program beginning in FY 2010 and will be executed by the Joint Staff apart from the Technical Studies, Support, and Analysis program.

Organizations implementing TSCMIS include all of the Geographic Combatant Commands and the Army, and this program change will facilitate the inclusion of all of the Combatant Commands, all of the military services, DTRA, and DSCA. Future years will result in the integration of other security cooperation databases, including foreign military sales, training databases, and other interagency partner databases into the TSCMIS portal. Overall project costs include two TSCMIS personnel per organization with a TSCMIS system in addition to any personnel currently being used by the organization for TSCMIS support.

This system enhancement will provide support to Unified Commanders, Combatant Commanders, Services, and Interagency Partners which will further US interests by strengthening Military to Military and Civilian to Military relationships with regards to Theater, Regional, and Global Security Cooperation. SPAWAR has successfully demonstrated the capability to connect TSCMIS globally and to import information from partner agencies. This enhanced system will directly assist in providing commanders with an enhanced picture of all security cooperation and security assistance activities taking place in their Area of Responsibility.

Some COCOM and Service components currently use TSCMIS to track security cooperation activities, but not all COCOMS and Services and key defense agencies have access to the system. These planned enhancements will improve user accessibility, facilitate data exchange among components, and establish policy guidance on system use. The information made available by TSCMIS will better prepare commanders in all phases of planning.

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605104D8Z - Technical Studies, Support & Analysis	PROJECT P421
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Projected costs for TSCMIS enhancements:

FY 2010 Project management (\$360K); requirements (\$258K); development (\$5,300K); modification to existing TSCMIS (\$1,545K); TSCMIS personnel (\$4,800K)

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
FFRDCs:				
	Institute for Defense Analyses	Alexandria, VA	Various studies and analyses for OSD and the Joint Staff	Dec 09
	Rand NDRI	Santa Monica, CA	Various studies and analyses for OSD and the Joint Staff	Dec 09

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605110D8Z - Militarily Critical Technology Program						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P110 Militarily Critical Technology Program	3.673	3.985	4.914					

A. Mission Description and Budget Item Justification:

The Militarily Critical Technologies Program (MCTP) provides the development and implementation of DoD technology security policies on international transfers of defense related goods, services, and technologies:

(1) Export Control Program: Provides an ongoing assessment and analysis of goods and technologies. Determines significant advances in the development, production, and use of military capabilities of potential adversaries. Determines goods and technologies being developed worldwide with potential to significantly enhance or degrade U.S. military capabilities in the future. Identified in the Export Administration Act of 1979 and extended by Presidential Directive to review militarily critical goods and technologies and to consider worldwide technology capabilities. Comprised of two sets of documents:

- a). Militarily Critical Technologies List (MCTL): congressionally mandated source document for identification of leading edge and current technologies monitored worldwide for national security, nonproliferation control of weapons of mass destruction, and advanced conventional weapons.
- b). Developing Science & Technologies List (DSTL): describes military and proliferation significance of future technologies.

Specific activities include:

- Develop and publish in electronic form (including Internet version, both restricted and public) various editions of the Militarily Critical Technologies List (MCTL) and Developing Science and Technologies List (DSTL) documents that describe the military and proliferation significance of various technologies
- Monitor and assess dual-use and military technologies worldwide
- Assist in the development of proposals for negotiation in various multilateral export control regimes
- Provide technical support for the review/revision of the U.S. Munitions List under the Defense Trade Security Initiative
- Provide analytical support for Congressional reports
- Continuous technical support to interdepartmental and international processes which develop multinational export control agreements on technologies of concern to DoD
- Worldwide technology capabilities assessments for the MCTL and other USG international critical technologies efforts
- Identification and determination of technical parameters for proposals for international control of weapons of mass destruction
- Technical assessments to support decisions on foreign ownership of US industrial assets and treaty compliance inspections
- Identification of foreign technologies of interest to the DoD and opportunities for international cooperative research and development
- Identification of Homeland Defense and terrorism applications of militarily critical technologies

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE

0605110D8Z - Militarily Critical Technology Program

(2) The DoD Damage Assessment Management Office (DAMO) Program: The DAMO Program coordinates the conduct of assessments involving the loss of Controlled Unclassified Information (CUI) resulting from the illicit exfiltration of technical data maintained on unclassified DoD networks and unclassified networks managed by the Defense Industrial Base (DIB). The DAMO identifies and categorizes the impact of the loss of technical information contained on the affected systems, organizes and coordinate the assessments with the affected DoD component and the affected DIB partner, prepares interim and final assessment reports, and establishes a process to appropriately share collected information with all affected components and DIB members. The DAMO provides a triage of data and technical assessments based on the Militarily Critical Technology List (MCTL) and coordinates assessments and information across the Services/Programs. The DAMO establishes policy and procedures for conducting damage assessments applicable to all DoD components in concert with FAR and DFAR procedures pertaining to contracts with the DIB.

Specific activities include:

- Coordination with DIB partners, Defense Cyber Crime Center (DC3), Services, DoD agencies, Counterintelligence/Law Enforcement Agencies, and Service Acquisition Executives (SAES) to protect critical technologies from foreign exploitation.
- Establish and organize the DAMO to be the centralized office for coordinating damage assessments relating to CUI.
- Develop and publish DoD policy guidance regarding the conduct of Damage Assessments for all DoD components to implement relating to CUI.
- Develop, coordinate, implement and update CONOPs and procedures as required.
- Provide technical expertise and analyses in assessing the impact of data lost as a result of the exfiltration
- Develop and implement the DAMO library of assessments maintaining damage assessment reports and ensuring access is available to all with a "need to know" for analytical purposes.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605110D8Z - Militarily Critical Technology Program
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	3.987	4.007	4.007	
Current BES/President's Budget (FY 2010)	3.673	3.985	4.914	
Total Adjustments	-0.314	-0.022	0.907	
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases		-0.022		
Reprogrammings	-0.200			
SBIR/STTR Transfer	-0.106			
Other	-0.008		0.907	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

The Militarily Critical Technologies Program (MCTP) identifies critical technologies and informs export control processes to protect critical information from potential adversaries. Increased funding in FY10-FY15 equates into participation in damage assessments of the loss of Controlled Unclassified Information (CUI) resulting from the exfiltration of technical data to the Defense Industrial Base (DIB).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605110D8Z - Militarily Critical Technology Program				PROJECT P110	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P110 Militarily Critical Technology Program	3.673	3.985	4.914				

A. Mission Description and Budget Item Justification:

The Militarily Critical Technologies Program (MCTP) provides the development and implementation of DoD technology security policies on international transfers of defense related goods, services, and technologies:

(1) Export Control Program: Provides an ongoing assessment and analysis of goods and technologies. Determines significant advances in the development, production, and use of military capabilities of potential adversaries. Determines goods and technologies being developed worldwide with potential to significantly enhance or degrade U.S. military capabilities in the future. Identified in the Export Administration Act of 1979 and extended by Presidential Directive to review militarily critical goods and technologies and to consider worldwide technology capabilities. Comprised of two sets of documents:

- a). Militarily Critical Technologies List (MCTL): congressionally mandated source document for identification of leading edge and current technologies monitored worldwide for national security, nonproliferation control of weapons of mass destruction, and advanced conventional weapons.
- b). Developing Science & Technologies List (DSTL): describes military and proliferation significance of future technologies.

Specific activities include:

- Develop and publish in electronic form (including Internet version, both restricted and public) various editions of the Militarily Critical Technologies List (MCTL) and Developing Science and Technologies List (DSTL) documents that describe the military and proliferation significance of various technologies
- Monitor and assess dual-use and military technologies worldwide
- Assist in the development of proposals for negotiation in various multilateral export control regimes
- Provide technical support for the review/revision of the U.S. Munitions List under the Defense Trade Security Initiative
- Provide analytical support for Congressional reports
- Continuous technical support to interdepartmental and international processes which develop multinational export control agreements on technologies of concern to DoD
- Worldwide technology capabilities assessments for the MCTL and other USG international critical technologies efforts
- Identification and determination of technical parameters for proposals for international control of weapons of mass destruction
- Technical assessments to support decisions on foreign ownership of US industrial assets and treaty compliance inspections
- Identification of foreign technologies of interest to the DoD and opportunities for international cooperative research and development
- Identification of Homeland Defense and terrorism applications of militarily critical technologies

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605110D8Z - Militarily Critical Technology Program	PROJECT P110
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(2) The DoD Damage Assessment Management Office (DAMO) Program: The DAMO Program coordinates the conduct of assessments involving the loss of Controlled Unclassified Information (CUI) resulting from the illicit exfiltration of technical data maintained on unclassified DoD networks and unclassified networks managed by the Defense Industrial Base (DIB). The DAMO identifies and categorizes the impact of the loss of technical information contained on the affected systems, organizes and coordinate the assessments with the affected DoD component and the affected DIB partner, prepares interim and final assessment reports, and establishes a process to appropriately share collected information with all affected components and DIB members. The DAMO provides a triage of data and technical assessments based on the Militarily Critical Technology List (MCTL) and coordinates assessments and information across the Services/Programs. The DAMO establishes policy and procedures for conducting damage assessments applicable to all DoD components in concert with FAR and DFAR procedures pertaining to contracts with the DIB.

Specific activities include:

- Coordination with DIB partners, Defense Cyber Crime Center (DC3), Services, DoD agencies, Counterintelligence/Law Enforcement Agencies, and Service Acquisition Executives (SAES) to protect critical technologies from foreign exploitation.
- Establish and organize the DAMO to be the centralized office for coordinating damage assessments relating to CUI.
- Develop and publish DoD policy guidance regarding the conduct of Damage Assessments for all DoD components to implement relating to CUI.
- Develop, coordinate, implement and update CONOPs and procedures as required..
- Provide technical expertise and analyses in assessing the impact of data lost as a result of the exfiltration
- Develop and implement the DAMO library of assessments maintaining damage assessment reports and ensuring access is available to all with a "need to know" for analytical purposes.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Militarily Critical Technology Program	3.673	3.985	4.914

FY 2008 Accomplishments:

- Implemented MCTL re-engineering plan
- Implemented a commercial search engine to provide improved MCTL access and usability. Developed collaborative tools for the MCTL Technology Working Group (TWG) members. Developed MCTL prototype for the Department of Commerce and end users. Roll-out of these enhancements completed 2Q FY 2008. A revised search capability will be extended to the public MCTL web site in FY 2009
- Continued meetings of the MCTL Community Advisory Board (CAB) with key Service and Agency stakeholders as part of outreach to MCTL customers and users
- Provided detailed technical proposal inputs to Wassenaar Arrangement (WA) negotiation team. TWG Chairpersons have been formally invited to give technical support at the WA Plenary held annually in Vienna, Austria
- Initiated the staffing of a DoD Instruction outlining policy, procedures, and responsibilities to maintain the MCTL The MCTL Instruction was formally issued in 1Q FY 2009
- Provided MCTL program status to DoD Inspector General/Government Accountability Office and Departments of Commerce and State

FY 2009/2010 Plans:

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APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 6

0605110D8Z - Militarily Critical Technology Program

P110

(1) Export Control Program:

- Conduct MCTL annual update and reviews.
- Continue to strengthen outreach to Services, and U.S. Departments of State and Commerce to exchange technical information through the Community Advisory Board (CAB) process, as well as technical representation on multilateral export control panels.
- Improve and expand the focus of the DSTL effort to represent a broader global research watch.

(2) Damage Assessment Management Office (DAMO Program):

- Coordination with DIB partners, Defense Cyber Crime Center (DC3), Services, DoD agencies, Counterintelligence/Law Enforcement Agencies, and Service Acquisition Executives (SAES) to protect critical technologies from foreign exploitation.
- Establish and organize the DAMO to be the centralized office for coordinating damage assessments relating to CUI.
- Develop and publish DoD policy guidance regarding the conduct of Damage Assessments for all DoD components to implement relating to CUI.
- Develop, coordinate, implement and update CONOPs and procedures as required..
- Provide technical expertise and analyses in assessing the impact of data lost as a result of the exfiltration
- Develop and implement the DAMO library of assessments maintaining damage assessment reports and ensuring access is available to all with a "need to know" for analytical purposes.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E Defense-Wide, BA 6		R-1 Item Nomenclature: Foreign Materiel Acquisition and Exploitation PE 0605117D8Z		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	62.121	62.471	94.921	
A. Mission Description and Budget Item Justification:				
<p>This program manages the acquisition and assessment of foreign weapons systems, military equipment, and military and dual-use technologies for the military services and defense agencies.</p> <p><u>Program Accomplishments and Plans:</u></p> <p>FY 2008 Accomplishments: Mission Support \$62.121</p> <p>FY 2009 Plans: Mission Support \$62.471</p> <p>FY 2010 Plans Mission Support \$94.921</p>				
B. Program Change Summary:				
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Previous President's Budget	52.227	62.816	63.818	
Current President's Budget	62.121	62.471	94.921	
Total Adjustments	9.894	-.345	31.103	
Congressional reductions		-.345		
Congressional increases				
Department Adjustments	-.106		31.103	
Prior Approval Reprogramming	10.000			

Change Summary Explanation:

FY 2008: Prior approval reprogramming and Department decrease

FY 2009: Congressional reduction

FY 2010: Department increase

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Classified

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification							Date: May 2009																														
Appropriation/Budget Activity RDT&E Defense-Wide, BA 06	R-1 Item Nomenclature: Classified Program PE 0605128D8Z																																				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015																													
Total PE Cost	109.452	101.440	0.000	0.000	0.000	0.000	0.000	0.000																													
<p>A. Mission Description and Budget Item Justification: Classified.</p> <p>B. Program Change Summary:</p> <table border="1"> <thead> <tr> <th></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>FY 2010</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>Current President's Budget</td> <td>109.452</td> <td>101.440</td> <td>0.000</td> </tr> <tr> <td>Total Adjustments</td> <td>1.212</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>Congressional Reductions</td> <td>-0.624</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>Congressional increases</td> <td>98.200</td> <td>101.440</td> <td>0.000</td> </tr> <tr> <td>Other adjustments</td> <td>1.836</td> <td></td> <td></td> </tr> </tbody> </table> <p>Change Summary Explanation:</p> <p>FY 2008: Classified. FY 2009: Classified FY 2010: N/A</p> <p>C. Other Program Funding Summary: Classified</p> <p>D. Acquisition Strategy: Classified</p> <p>E. Performance Metrics: Classified</p>											<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	Previous President's Budget	0.000	0.000	0.000	Current President's Budget	109.452	101.440	0.000	Total Adjustments	1.212	0.000	0.000	Congressional Reductions	-0.624	0.000	0.000	Congressional increases	98.200	101.440	0.000	Other adjustments	1.836		
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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE

0605130D8Z - Foreign Comparative Testing (FCT)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P130 Foreign Comparative Testing (FCT)	30.811	34.718	35.054				

A. Mission Description and Budget Item Justification:

The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Deputy Under Secretary of Defense (Advanced Systems & Concepts), Comparative Testing Office. FCT projects are nominated by the Services and U.S. Special Operations Command (USSOCOM) each year. Evaluation processes for project selection include a detailed review to confirm the proposed item addresses valid requirements, a thorough market survey, and development of a viable acquisition strategy. A 7-day Congressional notification of the intent to fund the projects is required, prior to the issuance of funds to the Services/SOCOM for execution.

Since the program's inception in 1980, OSD has initiated 899 projects; 509 projects have been completed to date. Of the 272 evaluations that met the sponsors' requirements, 197 led to procurements worth approximately \$8.840 billion in FY 2008 constant year dollars. With an Office of Secretary of Defense (OSD) investment of about \$1.100 billion, the FCT program has realized an estimated RDT&E cost avoidance of \$7.370 billion in FY 2008 constant year dollars.

The FCT program is frequently a catalyst for teaming or other business relationships between foreign and U.S. industries; many successful FCT projects result in arrangements for the licensed production of the qualified foreign item in the U.S. Other nations recognize the long-term value of such practices for competing in the U.S. defense market and the resultant strengthening of the "two-way street" in defense procurement. For the U.S., the result often means the creation of jobs and contributions to local economies. To date, companies across 33 states have benefited from FCT projects.

Final selection of FY 2010 FCT new start projects will be determined in September 2009.

This Research, Development, Test and Evaluation (RDT&E) Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	32.634	34.910	35.719	
Current BES/President's Budget (FY 2010)	30.811	34.718	35.054	
Total Adjustments	-1.823	-0.192	-0.665	
Congressional Program Reductions				
Congressional Rescissions		-0.192		
Congressional Increases				
Reprogrammings	-1.300			
SBIR/STTR Transfer	-0.457			
Other	-0.066		-0.665	

FY 2010 change is a result of internal DoD deliberations

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

22 FY 2008 FCT Projects planned for completion.

11 FY 2009 FCT Projects planned for completion.

See R-2a project-level narratives for return on investment and technology performance metrics (i.e., KPPs).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)				PROJECT P130	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P130 Foreign Comparative Testing (FCT)	30.811	34.718	35.054				

A. Mission Description and Budget Item Justification:

The Foreign Comparative Testing (FCT) program supports the warfighter by leveraging mature technologies and equipment from allied nations and coalition partners to satisfy U.S. defense requirements, thereby accelerating the U.S. acquisition process and lowering development costs. Authorized by Title 10, U.S. Code, Section 2350a(g), the FCT Program is managed by the Deputy Under Secretary of Defense (Advanced Systems & Concepts), Comparative Testing Office. FCT projects are nominated by the Services and U.S. Special Operations Command (USSOCOM) each year. Evaluation processes for project selection include a detailed review to confirm the proposed item addresses valid requirements, a thorough market survey, and development of a viable acquisition strategy. A 7-day Congressional notification of the intent to fund the most meritorious projects is required, prior to the issuance of funds to the Services/SOCOM for execution.

Since the program's inception in 1980, OSD has initiated 899 projects; 509 projects have been completed to date. Of the 272 evaluations that met the sponsors' requirements, 197 led to procurements worth approximately \$8.875 billion in FY 2008 constant year dollars. With an OSD investment of about \$1.100 billion, the FCT program has realized an estimated RDT&E cost avoidance of \$7.370 billion in FY 2008 constant year dollars.

The FCT program is frequently a catalyst for teaming or other business relationships between foreign and U.S. industries; many successful FCT projects result in arrangements for the licensed production of the qualified foreign item in the U.S. Other nations recognize the long-term value of such practices for competing in the U.S. defense market and the resultant strengthening of the "two-way street" in defense procurement. For the U.S., the result often means the creation of jobs and contributions to local economies. To date, companies across 33 states have benefited from FCT projects.

This Research, Development, Test and Evaluation (RDT&E) Category 6.5 is assigned and identified in this descriptive summary in accordance with existing DoD policy.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Advanced Flight Deck Lighting System (AFDLS) (Navy)	0.902		

Outcome: A successful FCT will provide the Navy commercially developed Advanced Flight Deck Lighting (AFDL) systems to provide visual cues to pilots approaching air-capable ships for safe landings as well as lighting and status cues to deck handling crews. The AFDLs being evaluated provide Navy pilots with the increased capability to operate more effectively and safely at night because they are compatible with Night Vision Devices (NVDs). This increases the warfighters capability to operate with higher-tempo aircraft operations aboard US Navy ships during night time Littoral operations. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) The AFDL technology will replace the obsolete lighting system hardware with high reliability Light Emitting Diode (LED)-based deck fixtures and status indicators that fulfill all of the new shipboard Operational Requirements Document requirements; (2) the new technology is easier to support when compared to the legacy systems and meets new ship construction requirements for Night Vision Devices (NVD) compatibility; and (3) it avoids RDT&E costs of over \$50.000 million.

FY 2008 Output: Completed purchase of Advanced FDL evaluation systems. RFP was issued to three competing vendors soliciting AFDL systems. Proposals were evaluated, and purchase orders for both were signed and contracts awarded in Sep 08. Initiated planning for the laboratory and shipboard testing.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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FY 2009 Planned Output: System deliveries are scheduled for 2-3Q of FY 2009 and testing will begin during 4Q FY 2009. Install systems land based ship simulator at Lakehurst Naval Air Engineering Station for qualification testing against Navy flight tests. Develop test reports.

FY 2010 Planned Output: Complete final test reports. Secure approval for production; prepare close-out report; and execute contract options for Service use. Program Management Activity (PMA)251 has budgeted Other Procurement Navy (OPN) funding to support final production documentation & logistics support of the final configurations selected for the AFDL.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Advanced Stabilized Glide Slope Indicator (ASGSI) (Navy)	0.746		

Outcome: A successful FCT will provide the Navy commercially developed Stabilized Glide Slope Indicators (SGSI) for use in providing pilots approaching air-capable ships with a color-coded indication of a safe glide slope down to hover position for landing. The SGSIs being evaluated would provide Navy pilots with the increased capability to operate more effectively at night because they are compatible with Night Vision Devices (NVDs). This increases the warfighters capability to operate with higher-tempo aircraft operations aboard US Navy ships during night time Littoral operations. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) The ASGSI technology will replace the obsolete hardware with highly reliable Light Emitting Diode (LED)-based optics that meet all of the new shipboard ORD specs; (2) remove the safety threat currently impairing the pilot's ability to complete essential warfighting missions; (3) the LED-based technology is cheaper to procure and easier to maintain when compared to the legacy systems; (4) ASGI is compatible with NVDs and (4) it avoids RDT&E costs of over \$22.000 million.

FY 2008 Output: Completed purchase of Advanced SGSI evaluation systems. Request for Proposal was issued to the two competing vendors soliciting SGSI systems. Proposals were evaluated, and purchase orders for both were prepared & signed, and awarded in Sep 2008.

FY 2009 Planned Output: System delivery is planned for Dec 2008 for one vendor & May 2009 for the other. Testing will begin during 2Q FY 2009. Planning for the laboratory and shipboard testing has been initiated. Install systems that pass lab tests aboard ship for qualification testing against Navy flight tests. Conduct operational shipboard flight testing. Develop test reports.

FY 2010 Planned Output: Final test reports issued. Secure approval for production; prepare close-out report; and execute contract options for AFDL for Service use. Program Management Agency (PMA) 251 has budgeted Other Procurement Navy (OPN) funding to develop logistics support documentation for the new system.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
AK-47 Special Effects Small Arms Marking System (SESAMS) Training System (Navy)	0.440		

Outcome: A successful FCT will provide the United States Marine Corps (USMC) with a SESAMS compatible AK-47 Training Weapon, developed by General Dynamics Ordnance and Tactical Systems of Canada, to improve the realism of urban warfare training. A two-year project under sponsorship of the FCT and Marine Corps Systems Command, Program Management Training Systems. Projected completion date of testing and technology transition will be FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) A permanent training weapon that allows the shooter to fire, at short range, a low velocity non-lethal 5.56mm SESAMS marking cartridge; (2) Accurate visual and auditory weapon signatures providing increased threat recognition, survivability and battlefield awareness; (3) Increased training safety by using a center firing mechanism, precluding the weapon from firing lethal, live ball ammunition; and (4) Avoidance of RDT&E and manufacturing costs of \$0.950 million and \$0.110 million, while providing a ROI of 5:1.

FY2008 Output: Received Foreign Test Data during 1Q FY 2008. Received FCT Funds during 2Q FY 2008. Initiated Proposal Contract Preparation during 2Q FY 2008

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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FY2009 Planned Output: Award contract, receive test articles, and initiate Lab test by end of 1st Qtr. Initiate Field User Evaluation by the end of 2Q FY 2009. Complete Lab/Technical testing, and FUE by end of 3Q FY 2009. Complete Tech Data Package & Test Report by end of 3Q FY 2009. Milestone C Decision and Close-out report expected by end of 4Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Anti-Material Rifle - Sniper (SOCOM)	0.655		

Outcome: This project will evaluate anti-material rifles and subject them to a variety of tests to evaluate their performance, and ultimately select one rifle to complement the sniper rifle currently in SOF inventory. Primary Outputs and Efficiencies: Special Operation Forces (SOF) snipers need to be able to defeat material targets such as lightly armored vehicles, power stations, communication assets, unexploded ordnance, etc. Current sniper rifles are effective against personnel targets at long ranges, but are not as effective as desired against hardened/materiel targets. This rifle is designed to fill this capability gap. Research Development Test and Evaluation (RDT&E) cost avoidance for this weapon is \$15.000 million and the collective operations and support and procurement cost savings are \$9.000 million. This capability will be available to the warfighters two years sooner by using weapons already developed. Completion date is 30 Sept 2009.

FY 2008 Output: Conducted Performance Testing. Provided ammunition to domestic sources as government funded materials, according to contract. Performed "Shootability" Assessment.

FY 2009 Planned Output: Conduct initial Technical Testing; perform Operational and User Assessments and then down-select to most qualified vendor. Prepare test reports and submit decision packet. Milestone C decision is scheduled for 4Q FY 2009. Complete FCT Close-out Report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Area Mine Clearing System (Army)	0.342		

Outcome: A successful project will provide the US Army Engineer Future Force with an Area Mine Clearance System (AMCS) capability. The AMCS is a manned mobile medium flail system that can neutralize anti-personnel (AP) and anti-tank (AT) mines with its rotating flail head over a large area. The vehicle can survive and protect the operator/crew from multiple AP and AT mine blasts. The system operates independently from all other systems or equipment, except for standard communications; therefore, there are no interoperability issues with current and future planned systems. Medium flails have been in use worldwide for over 20 years in humanitarian demining operations and provide a proven capability that is both reliable and re-producible. Today, Soldiers and Marines clear approximately 80 square meters per Combat Engineer Platoon per day of mines using hand held mine detectors, mine probes, grapnel hooks, and hand emplaced explosives. This method exposes Soldiers to unnecessary risks and is too slow to meet future force requirements. The AMCS program will provide the Army with a safer, more efficient and more systematic clearing capability. The Army medium flail program will increase the clearing capability to 2,500 square meters per platoon per day. The primary outputs and efficiencies to be demonstrated in future testing of the AMCS are: (1) extreme temperature operation; (2) electro-magnetic effects (EMI/EMC); (3) additional survivability testing; and (4) additional transportability testing focusing on rail, highway, and sea-lift. This Foreign Comparative Test will provide the Army with a cost savings of \$6.700 million and provide a Return on Investment (ROI) of 3.3:1.

FY 2008 Output: Additional funds received during 4Q FY 2008 in the amount of \$0.100 million. Services Contract was awarded in 4Q FY 2008, which allowed for repairs to one of the test articles. There will be no more testing with the repaired Test Article. Final FCT testing was in May 2008, and has allowed the AMCS FCT vendors to receive their official out-briefing in 1Q FY 2009.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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FY 2009 Planned Output: FY 2008 funds will continue to provide support for the test article repair. In FY 2009, the AMCS actions will consist of: (1) Formal down-select to one system for the Army; (2) award of the production contract to the selected vendor for 65 systems total; (3) approval from Tank Automotive Command (TACOM) for a Conditional Material Release; and (4) initial system fielding and New Equipment Training to Engineer Clearance Companies. The project close-out report is anticipated in 1Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
AT4-CS w/ Enhanced Blast Tandem Warhead (EBTW) (Army)	0.597		

Outcome: To demonstrate and qualify the Anti-Tank 4 Confined Space (AT4CS) to meet shoulder launched munition capabilities required by the US Army Infantry Center. The current AT4CS warhead provides high lethality and incendiary effects against armor (defeats 16 inches of armor) but lacks overmatching penetration and effect against masonry walls made of brick and concrete and other urban targets/structures, field fortifications (earth and timber bunkers). With increased deployment of US Forces around the world in urban warfare environments, a new multipurpose warhead with the ability to penetrate brick and concrete walls, incapacitate enemy forces behind urban structures and within field fortifications is required to maintain overwhelming firepower and reduce the logistics and training associated with multiple systems. The three-year effort will plan for and procure the hardware necessary to conduct test and evaluation for US Army, conduct the developmental and operational tests necessary to verify safety and support materiel release, and complete the modeling and simulation, and evaluation of test results to ensure that the AT4CS-EBTW meets requirements by the end of FY 2009. The lead service is Army. The primary outputs and efficiencies to be demonstrated are (1) capability of incapacitating enemy soldiers positioned behind urban walls and structures made of eight inch double reinforced concrete, (2) capability of incapacitating enemy soldiers positioned behind urban walls and structures made of 12 inch triple brick, (3) capability of incapacitating enemy soldiers positioned within earth and timber bunkers, (4) capability to meet performance requirements within close combat ranges and (5) capability to be safely fired from enclosures found in urban environments. In addition to savings in logistics and training from eliminating multiple munitions, the procurement cost savings of this project is estimated at 40-50 percent of the unit cost of each weapon by leveraging ammunition and fuzing components from other similar 84mm family weapons. Assuming \$0.003 million per round savings x \$0.020 million rounds over five years = \$0.060 million.

FY 2008 Output: Conducted Instructor and Key Personnel Training in Sweden in preparation of Operational Testing. Accepted delivery of Target Practice rounds and conducted Operational Testing at Ft. Drum, NY in June. Initiated Developmental Testing (Blast Overpressure Testing at Aberdeen Proving Ground, MD) in August. Conducted two follow-up site visits in August and December to evaluate the contractor's technical approach and plan for delivering test assets for Developmental Testing to be completed during the 4Q FY 2009.

FY 2009 Planned Output: Accept delivery of final shipment of test assets and complete all developmental testing, conduct full system evaluation and prepare final close-out report. **Spiral Output:** The successful completion of safety tests will facilitate urgent materiel release in FY 2010. The qualification and fielding of the AT4CS-EBTW will be a combat multiplier since it reduces the need for continued fielding of multiple shoulder launched munitions with similar capabilities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Autogated Image Intensifier Tubes (SOCOM)	0.540		

Outcome: This project proposes testing current foreign autogated Image Intensifier (I2) tubes, a crucial subsystem integrated into the night vision devices used by Special Operations Forces (SOF) in counter terrorism operations. Additionally, a separate evaluation will be conducted on the effectiveness of the Thales Display to meet Special Operations Command (SOCOM) night vision requirements. **Primary Outputs and Efficiencies:** US production of auto-gated Image Intensifier (I2) tubes for night vision devices (NVD) cannot keep up with the DOD demand for visual augmentation systems and has affected the fielding of night vision goggles (NVGs), specifically Army Navy/Passive Vision Sight 15A(AN/PVS-15A) to Special Operations Forces. The challenge is to qualify a foreign source of autogated I2 tubes that can be used to facilitate immediate fielding of AN/PVS-15A NVGs. Completion date is 30 June 2009.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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FY 2008 Output: Project approved as an out of cycle 2008 project.

FY 2009 Planned Output: Funds received. Received test articles; conducted analysis, study, and integration; conducted technical and safety tests, performed user assessment with combined developmental and operational testing. Prepare decision packet and FCT Close-out Report. Milestone C Decision is scheduled for 3Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Ceramic-Aluminum (CERAL) Engine Coatings (Air Force)	0.557		

Outcome: A chrome free drop-in replacement protective coating for gas turbine engines, landing gear, and surfaces of strategic components that are exposed to severe environments. The 76th Propulsion Maintenance Group (76th PMXG/CC) at Tinker Air Force Base plans to evaluate a non-metallic coating manufactured by Gebr. M.u.M. Morant GmbH of Grassau, Germany. The primary outputs and efficiencies to be evaluated are a non-metallic coating that lasts twice as long (3000 hours), costs 25 percent less, and increases engine performance by providing a smoother surface. Reduced corrosion, reduced cost, reduced friction and wear, equals increased performance, increased life, and saves fuel. Ceramic-Aluminum (CERAL) coatings are used extensively throughout DoD to provide protection from erosion and corrosion on gas turbine engines, landing gear, and surfaces of strategic components that are exposed to severe environments. Coating materials currently in use contain 6 percent carcinogenic chrome, whereas, CERAL 3450 is chrome free.

FY 2008 Output: Completed testing with final demonstration date end of 4Q FY 2008.

FY 2009 Planned Output: Completion date and final report 4Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Ceramic Tile Testing and Evaluation for Hard Body Armors (Army)	0.846		

Outcome: A new hard armor, Small Armors Protective Inserts (XSAPI), using Silicon Carbide (SiC) made by Saint Gobain (Germany) or Hocheng (Taiwan), together with domestic SiC, to meet US Army's production needs. Silicon Carbide (SiC) candidate made by Hocheng (Taiwan) has been added and will be funded by the Project Manager for testing. Upon successful testing and evaluation, the product will be the deliverable: The primary outputs and efficiencies are new hard armor, XSAPI, with higher level of ballistic protection than current SAPI with minimum weight increase. RDT&E Cost Savings: \$10.000 million. O&S Cost Savings: no impact. Procurement Cost Savings: \$50.000 million. Fielding Reduction: no impact. Procurement Potential: \$500.000 million. Other Benefits: Mitigate production risk, maintain industrial base.

FY 2008 Output: All contracts have been awarded. More than 100 samples from Saint Gobain/BAE have been tested. Based on testing results, British Aerospace Engineering (BAE)/Saint Gobain has submitted Product Demonstration Models (PDM) to Program Executive Officer (PEO) Soldier and passed the XSAPI specification requirements. A production XSAPI contract has been awarded to BAE with the design using Saint Gobain ceramic tiles. Schunk tile samples will be delivered for testing within next two weeks. Hocheng's test samples have been shipped to PEO Soldier for testing. Overall the program is on track and very successful.

FY 2009 Planned Output: Complete testing and evaluation of Saint Gobain, Schunk and Hocheng's ceramic tiles for XSAPI. Using testing data/results to assist the industry to improve their ceramic tile performance. Evaluation will include the ballistic performance against various threats, 5.56mm, 7.62mm, hard steel core and tungsten carbide core rounds, the cracking patterns, durability, environmental effect, and physical mechanical properties. Starting XSAPI procurement with passing performance results from foreign made ceramic tiles. Transition manager is Program Manger (PM) Soldier.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 6	0605130D8Z - Foreign Comparative Testing (FCT)	P130		
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Enhanced 5.56mm and 7.62 Rounds for Special Operation Forces (SOF) Combat Assault Rifle (SCAR) (SOCOM)		1.068		
<p>Outcome: This project qualifies enhanced 5.56mm and 7.62mm ammunition for Special Operation Forces (SOF) direct action missions. By employing a single "multi-purpose" round, the Special Forces operator has the precision fire, intermediate barrier penetration and terminal ballistic performance attributes of three or more separate rounds found in the current inventory of rounds. Primary Outputs and Efficiencies: True multi-purpose enhanced ammunition is being sought that combines improved terminal ballistics, including accuracy, penetration of steel and auto glass without deflection, as well as providing maximum tissue damaging effects. Combat effectiveness is enhanced, while ammo load/load-out is reduced. Completion date is scheduled for 30 Jun 2009.</p> <p>FY 2008 Output: Published Technical Data Package for 5.56 and 7.62mm enhanced rounds. Awarded test article contracts and procured test articles. Sample testing conducted. Performed type classification testing.</p> <p>FY2009 Planned Output: Down selection of vendors to participate in live fire testing; and completion of procurement contract for test items. Analysis of vendor data will be accomplished prior to the start of technical and safety testing leading to safety certification and Weapons System Explosives Safety Review Board qualification. A procurement decision packet will be completed before the end of 3Q FY 2009. An FCT closeout report will be published and distributed.</p>				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Fractal Antenna Technology for Shipboard Information Operations (Navy)		0.546		
<p>Outcome: A successful FCT will provide the Navy a compact fractal element High Frequency (HF) antenna. This antenna will be based on that currently fielded onboard Spanish Navy frigate ships. This antenna will be much more compact and have a lower Radar Cross Section (RCS) than current United States Navy (USN) HF antennas. It will fit in locations not currently capable of supporting HF antennas and can be installed without an Antenna Tilting Group (ATG) in locations currently requiring ATGs. It will be the baseline for compact low-RCS HF antennas for future Navy ships. Two year project under Navy sponsorship of Space and Naval Warfare Systems Command (SPAWAR). The primary outputs and efficiencies to be demonstrated in the FCT are: (1) demonstration of a compact fractal HF antenna optimized for USN installations; (2) the potential elimination of ATGs from many HF antenna installations; (3) reduction in maintenance labor and expenses currently devoted to maintaining and repairing antenna tilting groups; (4) reduction in weight and improvement in balance/center of gravity due to removal of ATGs, as each ATG weighs roughly 1000#; (5) greater availability of antennas currently requiring ATGs; (6) opportunity to increase HF communications throughput through the installation of new and/or superior HF antennas onboard ships that are currently fully populated with antennas; (7) advancement in developing compact, low observable, low RCS HF signal intelligence antennas mandated for deployment onboard future ships, such as DD(X); and (8) Avoid RDT&E and O&S costs of over \$63.500 million.</p> <p>FY 2008 Output: Initial funding received 2Q FY 2008. Developed test specifications and a draft Fractal Test Plan. Completed test article contract negotiations 4Q FY 2008.</p> <p>FY 2009 Planned Output: Test article contract award Jan 2009. FY 2008 funding will continue to complete test plan development, conduct bench level performance testing and shore antenna testing. Final test report and FCT close-out report scheduled for September 2009.</p>				
<u>Accomplishments/Planned Program Title:</u>		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Global Positioning System (GPS) Jammer (Air Force)		0.550		

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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Outcome: To provide a state-of-the-art United Kingdom (UK) Low to Medium Power Defeat Agent GPS Jammer System, capable of emulating most current and projected adversary GPS jammers. Systems include remote control units, transport cases, batteries, and antennas. The Joint Navigation Warfare Center (JNWC) will evaluate a GPS Jammer system developed by Technology Ltd located in Twekesberry, UK. The GPS is a critical element of all US military operations. Our adversaries recognize the asymmetrical advantages GPS provides and are developing more and more robust GPS jamming systems to eliminate these advantages. This project involves identifying and procuring the most capable foreign jammer available in the market place to evaluate its ability to emulate adversary threats, current and projected, to provide realistic weapon system Positioning, Navigation, and Timing (PNT) denial testing, to support realistic operational training, and to support Tactics, Techniques, and Procedures (TTP) development to counter the growing threat.

FY 2008 Output: Procured test article and began evaluating the system.

FY 2009 Planned Output: Complete testing and publish test report 15 September 2009.

FY 2010 Planned Output: Procure additional Systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Heat Resistant Lightweight Matting (Navy)	0.575		

Outcome: A successful FCT will provide the Navy with lightweight, light-duty, heat-resistant airfield surfacing systems for use as a Vertical Takeoff and Landing (VTOL), taxi and parking surface for ground operations of MV-22 aircraft. This program will leverage all testing and data developed under the successful FY 2002 FCT that resulted in the testing and procurement of our current EAF Lightweight Matting. Current Lightweight Matting supports all USMC VTOL aircraft except unique operating profile of the MV-22 Osprey. Existing lightweight matting may not tolerate the MV-22 engine heat signature and loads. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) this project will facilitate testing and deployment of a follow-on expedient airfield matting system capable of accommodating the MV-22, particularly in the austere operating environments found in Iraq and Afghanistan; (2) the MV-22 will provide the USMC with the enhanced range and warfighting capabilities. These capabilities can be further enhanced with the use of Lightweight Matting expeditionary airfields, thus giving additional flexibility to the MV-22 in order to bring more firepower to bear on hostile forces; and (3) avoid RDT&E cost of \$1.800 million.

FY 2008 Output: Lightweight Matting (LWM) was instrumented and Lab tested to determine material properties. Engineering analysis was conducted to further determine material limits of LWM to ensure safety of flight for MV22 aircraft testing. MV22 aircraft was tasked to dwell on LWM for various time periods. MV22 conducted numerous VTOL evolutions to characterize engine exhaust heat signatures. MV22 testing was conducted at MCAS Bogue. Final test report will provide recommendations for use of LWM for MV22 use in training and wartime.

FY 2009 Planned Output: Finalize testing, review test reports; complete FCT close-out report and begin procuring if test results are favorable.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Hostile Forces Tagging, Tracking and Locating (SOCOM)	0.648		

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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Outcome: This project will evaluate a collection of tagging, tracking and locating devices that represent the latest in technology. Primary Outputs and Efficiencies: These electronic components consist of Data Loggers, Direction Finding devices with associated receivers, Ground Positioning Satellite (GPS) based cellular and satellite systems. These devices will provide deployed Special Operations Forces worldwide with an enhanced capability to tag, track and pin-point location of adversaries. Due to the number of test articles involved and their sophistication, testing was divided into two phases over two years. The procurement potential for these devices is up to \$24.300 million and will result in \$19.500 million cost avoidance. Completion date is 30 June 2009.

FY 2008 Output: Contracted for and received test articles for Phase II. Conducted analysis of vendor data. Conducted Initial Technical Test for Phase II and Prepared Technical Test Report. Began Operational Test for Phase II.

FY 2009 Planned Output: Complete Operational Test of Phase II test articles, prepare and submit test reports. Prepare decision packets and FCT Close-out Report. Procurement decision is scheduled for 3Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Program Executive Office (JPEO) Biological Detection System (Army)	1.253		

Outcome: This project will evaluate Biological Detectors for performance and cost advantages over the Biological Aerosol Warning Sensor (BAWS) which is a component in the Joint Biological Point Detection System (JBPDS) and Joint Portal Shield (JPS). The JBPDS has fielded 230 systems and JPS has fielded 222 systems. Together, they are deployed in locations where Biological Agent surveillance is required. Maintaining Biological Agent surveillance operations has become an affordability issue, and systems that are less manpower-intensive are required. The primary outputs and efficiencies to be demonstrated are (1) Reduction of Operation and Support costs (goal 67 percent) through lower false detection rate representing \$0.840 million in cost avoidance per day per site and (2) Increase in reliability to lower dependence on the need for cleaning and repair by contractor and Original Equipment Manufacturer (OEM) repair which averaged \$0.011 million per detector in 2005. Based on 500 fielded systems by FY 2009 this project will reduce costs by \$1.500 million annually if the evaluation substantiates the manufacturer's claims.

FY 2008 Output: Initial FY 2008 funds were received in Aug 2008. The candidate foreign detectors were procured and tested along with domestic detectors against biological simulants and interferents at Eglin Air Force Base (Florida), Dugway Proving Ground (Utah), and various CONUS locations. Upon completion FY 2007 tests, no candidate detector performed better than the baseline system. Vendors were allowed to revise their algorithm based on data from FY 2007 tests. Testing resumed in FY 2008 with the addition of biological agent chamber testing. No foreign test candidate performed well against the JBPDS approved pass/fail criteria.

FY 2009 Planned Output: the Detector evaluation in agent chamber will be completed in 1Q FY 2009 using combined remaining FY 2008 FCT funds and internal program funds. Closeout report submitted. No further FY 2009 actions are planned for FCT.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Large Polymer Lithium ion Battery (Army)	1.019		

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Outcome: This project will evaluate the potential for Lithium-Ion (Li-Ion) polymer and 18650 cell battery cells, to satisfy Army and United States Marine Corps (USMC) portable electrical power requirements for a high power density, high cell potential fuel source. The candidates may provide greater energy density than present Li-Ion cell-based batteries and have the potential to reduce the logistics burden and enhance cost effectiveness through increased mission times (increases in power), greater shelf life, increases in power and greater recharging capability. Efficiency: Estimated in a \$20.000 million RDT&E cost avoidance and a \$5.000 million O&S cost savings. The primary outputs and efficiencies to be demonstrated in the development tests are 1) demonstrate 3 times energy of BB-2590; 2) demonstrate at least 250 cycles to reduce the cost of use; 3) operate at all environmental conditions; 4) avoid RDT&E costs of \$20.000 million.

FY 2008 Output: Purchased Li-ion polymer cells for BB-XX80 type batteries. Based on initial test and evaluation, they are acceptable to be used in BB-XX80 type batteries. Awarded design concept of the batteries. Completed engineering evaluation of cells and obtain initial batteries for XX80 type design batteries. Initiated evaluations on battery configurations. Completed preparation for purchase of cell types to evaluate the cell performance and safety performance of the cells for BB-XX80.

FY 2009 Planned Output: Completed evaluations of batteries using Li-Ion polymer cells using BB-XX80 type batteries. Awarded the batteries contracts for to build the BB-XX80 batteries. The BB-XX80 batteries are designed very similar to the BB-XX90 battery which will allow all 75+ applications to use this battery. The 50 batteries were delivered to Communications-Electronics Research Development and Engineering Center (CERDEC) for evaluation in July 2008. Additional 20 batteries each using 18650 cells are awarded to lower the cost of battery pack. Completed written evaluations reports on polymer battery packs for Communications Electronics Command (CECOM - US Army) Battery group to purchase, if successful, this battery type with 18650 cells.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Mems Accelerometer for Tactical Engagement Sensor System (Army)	0.167		

Outcome: This project will test a foreign Micro Electro-Mechanical System (MEMS) that will provide the U.S. Army improved training realism during live simulated force-on-force tactical engagement training exercises by reducing power consumption, weight, volume, and procurement cost. The current system uses an accelerometer component that is costly, consumes too much power, and is too large which are significant barriers to transition it to PEO STRI's One Tactical Engagement Simulation System (OneTESS) program of record. If this project is successful, it is our intent to modify existing designs and incorporate the new (MEMS) accelerometer for transition in FY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) reduce power consumption by 90 percent; (2) reduce weight by 90 percent; (3) reduce volume by 25 percent; (4) reduce procurement cost by 50 percent; (6) avoid Research Development Test and Evaluation (RDT&E) costs of \$0.660 million; and provide Return on Investment (ROI) of 480:1.

FY 2008 Output: Award laboratory test and evaluation contract in 2Q FY 2008 procure test articles, and initiate accelerometer testing.

FY 2009 Planned Output: Finalize testing and complete test data analysis and report by 1Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
MK47 Trainer System (SOCOM)	0.838		

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Outcome: This project will evaluate a crew served weapons training system used for mission specific rehearsals prior to combat operations. Primary Outputs and Efficiencies: The trainer system allows operators to dry fire the weapon and receive feedback. The significant procurement cost avoidance of approximately \$57.000 million is realized by firing training ammunition instead of expensive programmable airburst ammunition. The objective is to directly improve the readiness of Special Operation Forces (SOF) forces by allowing operators to train on MK47 systems and rehearse missions on a highly realistic trainer. Completion date is 30 Sept 2009.

FY 2008 Output: Received test articles. Conducted analysis, studies, and integration. Worked through contracting office to submit Engineering Change Requests and contracted for intermediate and advanced systems with adjusted delivery dates. Analyzed vendor data. Conducted technical and operational tests with limited User Assessments.

FY 2009 Planned Output: Prepared and submitted technical test report. Prepare and submit test results of the operational test. Prepare decision packet and FCT Close-out Report. Milestone C Decision is scheduled for 2Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Real Time Geospatial Information Sharing (Army)	0.469			

Outcome: This project will test Black Coral Live to provide Command Post of the Future (CPOF) Command and Control Systems real time information sharing and collaboration using geospatial maps/data for the war-fighter at all levels. The test will validate searching of current data (from internet or official databases) and ability for several information layers to be combined for see-through ability. Each user has the ability to add their detailed knowledge from the field and/or send a message to another user. Improvements: Incorporation of the Black Coral Live software into the CPOF architecture will provide CPOF with an on the move solution to support mounted Battle Command. Efficiency: The outcome will provide Geospatial Information System collaboration to support Battle Command on the move operations, at a RDT&E.

FY 2008 Output: Development of a software module that allows Black Coral Live to interoperate with CPOF via a plugin to the CPOF Databridge. Interoperability between Black Coral Live and CPOF over the tactical network was demonstrated at the 2008 Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Exercise at Fort Dix, and Black Coral Live was able to successfully exchange geospatial and tactical data with CPOF. Compliance with MIL-STD-2525B symbology was greatly improved, but not completed. All of the single point symbols are supported, as well as most of the multi-point graphics. Overall, development of interoperability requirements was completed and successfully tested and demonstrated.

FY 2009 Planned Output: Completion of support for Commercial Joint Mapping Tool Kit (CJMTK) and MIL-STD-2525B Change 1. Continued discussion with the CPOF program office to determine how they could employ the use of Black Coral Live, with the successes demonstrated at the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Exercise. Final testing of full CJMTK and MIL-STD-2525B Change 1 support will be completed, which will ensure full interoperability with CPOF.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Secure High Capacity Tactical Radio Relay System (Army)	0.359			

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Outcome: This project will test and evaluate an improved, more efficient communication solution for securely moving information between central base stations and multiple outstation network nodes via the Swedish Point-to-Multipoint (PTMP) radio system versus the currently fielded military Point-to-Point (PTP) radios. The Swedish PTMP solution could reduce the number of required radio-sets by up to 50 percent and offer alternate modes of operation, providing enhanced communications security. The Swedish system is also easy to set up, operate and maintain, and designed for simple and efficient network management by means of a built-in web server. The primary outputs and efficiencies to be demonstrated are: (1) up to 50 percent reduction in number of radios required in a "star configuration" network system, (2) communications performance equal or greater than the Army current High Capacity Line of Sight (HCLOS) AN/GRC-245 radios (data rates, short delays, comm. range, etc.), and (3) possible enhanced security performance due to additional Low Probability of Intercept (LPI)/Low Probability of detection (LPD)/ Anti-Jam (AJ) modes. Procurement savings: \$9.100 million. Research Development Test and Evaluation (RDT&E) Cost Avoidance: \$20.000-30.000 million & 18-24 months of development to upgrade current Army radios. Operations & Supports Life-Cycle Cost Savings: Over \$5.000 million, based on 50 percent reduction in supported radios.

FY 2008 Output: Radios (test items) received at US Army Communications-Electronics Research Development and Engineering Center (CERDEC). Technical tests performed in the laboratory and in the field. Test & evaluation report preparation. Reviewed test results with sponsoring Government Program of Record: Program Manager Tactical Radio Communications Systems (PM TRCS). PM TRCS analysis of alternatives & procurement decision. Close-out report & briefing

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Spatial Disorientation Trainer (Air Force)	0.284		

Outcome: A Spatial Disorientation (SD) Trainer. The Chief, Aero Medical Flying Training Branch/Command Pilot Physician (AETC/A3FP) at Randolph AFB will evaluate a Spatial Disorientation Trainer developed by Technik GmbH of Ranshofen, Austria. The primary outputs and efficiencies to be evaluated are pilots experiencing SD illusions and practicing SD recoveries in a realistic simulated flight environment. The cost of unrecognized Spatial Disorientation (SD) accidents in the USAF between 1991-2004 was tremendous, representing 37 percent of fatal Class A mishaps at a cost of over \$1.9 Billion and 82 lives. Air Education and Training Command (AETC) plans to reduce this accident rate by obtaining SD trainers capable of producing most of the known SD illusions associated with aircraft flight and incorporating them into pilot training, allowing pilots to experience SD illusions and practice SD recoveries in a realistic simulated flight environment (a training capability that currently does not exist in the USAF). This program will allow AETC to evaluate and compare currently available Commercial Off The Shelf (COTS) SD trainers capable of allowing a pilot to fly the simulator while being exposed to motion-induced, visual and seat-of-the-pants mismatches.

FY 2008 Output: Completed testing with final demonstration date end of 4Q FY 2008.

FY 2009 Planned Output: Completion date and final report 2Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Tactical Paging Buoy (TPB) for Sub Comms at Speed and Depth (Navy)	0.283		

Outcome: A near-term Communications at Speed and Depth (CSD) capability was identified as one of the highest Fleet priorities as critical to planned missions and scenarios. This project will evaluate submarine-launched expendable communications buoys developed by Ultra Electronics Maritime Systems of Canada and RRK Technologies of the United Kingdom to provide a submarine at depth and speed with the capability to receive messages from the global Iridium Satellite Network via undersea acoustic communications. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) A new capability that will support more agile submarine mission execution and better synchronized joint/coalition operations, and enable rapid and inexpensive fielding of the acoustic communications capability aboard U.S. submarines.

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FY 2008 Output: All contract test items and supporting communications network interface units were delivered. A pre-Military Utility Assessment (MUA) submarine test was conducted at Atlantic Undersea Test and Evaluation Center (AUTECH) with the fleet shore command facility, Norfolk, VA, 3Q FY 2008. During the 4Q FY 2008, a full MUA evaluated the TPB in several operational scenarios with an operational submarine in the AUTECH vicinity against the 19 Key Performance Parameter equivalents (derived from the Technical Requirements Document for TPB). Commander, Operational Test and Evaluation Force (COMOPTEVFOR) performed the final evaluation.

FY 2009 Planned Output: The Final Technical Test Report will be completed 1Q FY 2009 and project closeout reports are anticipated 2Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
TerraSARX (Air Force)	1.478			

Outcome: A high resolution, day/night, all weather observation capability. The Eagle Vision Program Manager at Hanscom AFB will evaluate the software that will interface with Eagle Vision a new high resolution, day/night, all weather observation capability developed by the German company Infoterra. The primary outputs and efficiencies to be evaluated will be the capability to extend the all weather imagery capabilities of the operational Eagle Vision systems with resolution reaching 1 meter Ground Sample Distance (GSD) providing the highest resolution ever achieved from an unclassified civil or commercial satellite. This capability is critical to effective mission planning and battle space awareness and with a new unclassified satellite, allowing open sharing among coalition partners. Germany, with other European partners, has launched this new generation synthetic aperture radar satellite to provide all weather satellite imaging and ocean surveillance.

FY 2008 Output: Contract awarded 1Q FY 2008. System testing and data analysis will take place during the year.

FY 2009 Planned Output: Complete testing and final report 4Q FY 2009.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Type II Superlattice Focal Plane Arrays and Cameras (Army)	1.268			

Outcome: This project to demonstrate infrared focal plane array performance at higher operating temperatures than is currently available from state-of-the-art focal plane arrays. The eighteen month project is under the sponsorship of Program Management (PM) Night Vision for completion of demonstration/testing by 2Q FY 2009 with subsequent transition to PM Night Vision (NV)/ Recon, Surveillance and Target Acquisition (RSTA). These focal plane arrays will be appropriate to retrofit existing systems with potential transition to Long Range Scout Surveillance System (Stryker and HMMWV), Apache (targeting), F-35 (threat warning, navigation and targeting) and Future Combat Systems. The lead service is Army. The primary outputs and efficiencies will allow us to assess our ability to carry out the activity and measure how well we have achieved the outcomes shown below. Some of the key points are; (1) decrease the costs of the focal plane array by a factor a two (2) raise operating temperature over current arrays, thereby decreasing system cost (smaller size, weight, power) (3) the increase operating life by a factor of two. The formula will be used for calculating the return on investment (ROI) for the above efficiencies is (cost avoidance as result of successful FCT completion)/FCT investment. The calculation yields an ROI of 92.1. The cost avoidance is based upon \$30.000 million in research and development costs avoidance, reducing the acquisition cost of each focal plane array by 50 percent avoiding \$60.400 million and increasing the reliability by a factor of two with a total ownership cost avoidance of \$181.000 Million. The above calculation does not take into account the time value of money.

FY 2008 Output: Delayed delivery of camera to 2Q FY 2009, pending delivery of same cameras to their German commercial airline customer. The German Government did not allow purchase of Long Wavelength Infrared (LWIR), Strained Layer Superlattices (SLS) camera from AIM (Germany) and subsequently the FCT plan was modified at no additional cost to allow purchase of dual mode active/passive camera from Selex (United Kingdom).

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FY 2009 Planned Output: Parts to be acquired and tested in the Night Vision and Electronic Sensors Directorate (NVESD) IR System Test Lab tactical requirements and at the IR Space Radiation Effects Laboratory for strategic requirements. Following this, then transition to Long Range Advanced Scout (LRAS) for ground testing.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Waterjet Shock Qualification for Future Naval Combatants (Navy)	2.068		

Outcome: A successful FCT will provide the U.S. Navy large waterjet shock-qualified certifications. Two major suppliers, Kamewa/Rolls Royce (Sweden) and Lipps/Wartsilla (Netherlands), will be subjected to full-scale shock test and modified, if necessary, in order to be Grade A shock qualified per U.S. Navy requirements. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) large waterjet Grade A shock certification for installation on the Navy's Littoral Combat Ship (LCS), and other future naval ships; and (2) RDT&E cost savings of \$50.000 million, production cost savings of \$25.000 million, and procurement cost savings of \$8.000 million.

FY 2008 Output: Awarded contract for Vendor support tasking, to assist in test fixture design, waterjet test preparation, operational evaluation of the waterjet pre/post shock, tear-down inspection and miscellaneous support. Exercised purchase order for spare Wartsila-Lipps waterjet for shock testing.

FY 2009 Planned Output: Shock test is scheduled for 2Q FY 2009. Complete detailed test fixture design, including design of waterjet prime mover and test procedure development. Finalize test configuration with approval from Naval Technical Authority on waterjet operation and mounting. Delivery of waterjet components and integration into test apparatus.

FY 2010 Planned Output: Accept delivery of Wartsila-Lipps waterjet and deliver to components and integration into test apparatus. Prepare for Wartlisa-Lipps for final test configuration with approval from Naval Technical Authority on waterjet operation and mounting. Develop final test report and close out report.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
40MM Extended Range Marking (Army)	1.116		

Outcome: The objective of this program is to test and qualify, and field a new Non-Lethal Extended Range 40 mm Marking Munition for use in both the M203 and XM320 Grenade Launcher system. Commercial items will be procured for formal test and evaluation against US Army requirements. Upon successful testing, the XM1140 40mm Extended Range Marking Munition will be type classified into the Army inventory. The XM1140 40mm Extended Range Marking Munition is intended to replace the M1006 Cartridge for select applications and will increase the range of the current M1006 cartridge from 50 meters to 75 meters as well as provide an identifiable mark on personnel targets. Currently, soldiers must move closer to the disruptive elements subject to the application of the non-lethal force which places both soldiers and subjects at increase danger of unintended effects. The extended range will provide a longer buffer zone which increases the time before any decision to switch to lethal force is made while still applying an identifiable mark to the subject(s). Primary outputs and efficiencies are: Research Development Test and Evaluation (RDT&E) Cost Avoidance \$2.4 million; Procurement Cost Avoidance \$0.750 million; Fielding Reduction 1+ years; Procurement Potential \$2.400 million. It is estimated that the XM1140 will save \$2.400 million in Research and Development funds as well as enhance the capability of soldiers to apply a non-lethal deterrence at extended ranges an estimated one plus years earlier than if developed in-house.

FY 2008 Output: Program documentation has been generated to establish acquisition strategy and program baseline. The Capability Production Document has been drafted and is in process of being staffed for Joint Requirement Oversight Council approval. Prepared documents for the release of the solicitation to industry. Downselect and award contract for qualification test items.

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FY 2009 Planned Output: Perform Qualification Test and downselect and award production options.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
40 MM L60 HEI (SOCOM)	0.900	1.537	1.012	

Outcome: This project will qualify multiple sources of 40mm L60 High Explosive Incendiary (HEI) ammunition. Air Force Special Operations Command's (AFSOC) premier combat support aircraft, the AC-130 Gunship, had planned to replace the Bofors 40mm gun with a 30mm Bushmaster. Due to fire control integration issues, AFSOC is no longer pursuing that as an option. Planned attrition of the 40mm ammunition in time for the 30mm replacement is now a critical and indefinite requirement. Primary Outputs and Efficiencies: After January 2011 no 40mm ammunition will be available for AFSOC missions at the current rate of usage. Total RDT&E cost avoidance exceeds \$20.500 million. Completion date is 31 Dec 2010.

FY2008 Output: Received approval for out of cycle new start project. Conducted industry tours and posted solicitation in FedBizOpps.

FY 2009 Planned Output: Funding received. Contract for test articles; begin Technical and Safety testing.

FY 2010 Planned Output: Continue Technical Testing. Conduct Operational and User Assessment. Obtain Air Worthiness certification. Obtain Joint Munitions Safety Review certification.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Advanced Airborne Expendable Infrared Countermeasures (IRCM) (Navy)	0.523	2.616		

Outcome: This project will demonstrate an increase in the ability of Navy and Marine Corp aircraft to defeat advanced infrared man-portable air defense systems (MANPADS) with IMI pyrotechnic decoys. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) the FCT flare must demonstrate at least a 10 percent increase in effectiveness against the classified listing of Tier 3 missiles from the Advanced Strategic Tactical Expendables (ASTE) program or an optimized dispense pattern which uses fewer decoy flares in combination; (2) the flare must demonstrate 95 percent reliability at a 90 percent confidence level when used in combination with the BBU-35 impulse cartridge; (3) additional benefit will likely be a reduction in the types of expendable countermeasures maintained in the inventory; and (4) avoid RDT&E costs of \$9.25 million. This is a Navy-led project for the KC-130J aircraft; however, the Air National Guard has also committed to participate in evaluation testing using the F-16 and A-10 aircraft.

FY 2008 Output: Bullet Impact and Lockset testing was conducted on the M216 in May 2008 to determine the safety of the item for carriage onboard U.S. military aircraft. The Lockset testing demonstrated a Type V reaction, resulting in burning of the item without propagation to surrounding flares. The Bullet Impact tests resulted in a Type IV reaction in which the impacted flare propagated to adjoining items and caused minor damage to the dispenser magazine. Carriage of these flares on military aircraft should not pose serious safety concerns. A procurement contract was awarded to IMI, Inc in July for delivery of decoy flares for initial safety and qualification testing, with an option for the additional units necessary for conduct of Hazard Classification, Insensitive Munitions evaluation and effectiveness flight testing in FY 2009. The initial quantity of 700 M216 and 380 MJU-70/B units were received in Oct 2009. Digital simulations using the M216 on the KC-130J resulted in an optimized pattern which should provide very good effectiveness against 3rd generation infrared Man Portable Air Defense System (MANPADS) during flight test evaluation of the items.

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FY 2009 Planned Output: Safety and qualification testing of the M216 is scheduled for the 1Q FY 2009 and will continue through the 2Q FY 2009. With successful results, the option on the contract will be exercised to procure the additional 2100 items needed for Insensitive Munitions, Hazard Classification, Safe Separation and Effectiveness Flight testing. Safe Separation testing from the KC-130J test aircraft will be performed during the 3-4Q FY 2009 in preparation for the Effectiveness Flight test, scheduled to begin in late September. Initial Hazard Classification testing will also begin during the 4th Qtr 09 in preparation for a brief to the Weapons Systems Explosive Safety Review Board during FY 2010.

FY 2010 Planned Output: The Effectiveness Flight test will be performed during October 2009 after determination of the safety of dispensing the items from the aircraft through the Safe Separation tests. Insensitive Munitions and Hazard Classification testing will also be completed, and the test results briefed to the Weapons Systems Explosive Safety Review Board (WSESRB) to verify safety of transport on Navy vessels. A final report of all testing on the M216 will be written and briefed to the Navy acquisition authority to get a Milestone C decision by the end of 2Q FY 2010. Initial procurement will begin in the 3Q FY 2010 with deliveries in FY 2011.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Advanced Coatings Application Module (Air Force)	0.815	1.172		

Outcome: To provide a state-of-the-art Thermal Spray Coating System. Component life extension and reduced cost of operation can be achieved via the acquisition and qualification of the Canadian manufactured Axial III Advanced Thermal Spray Coating System. Wear coatings and thermal barrier coatings, essential parts of many turbojet engine and airframe components, are currently being applied using a technology dating back to 1914. The Axial III Advanced Thermal Spray Coating System produces coatings that exhibit superior performance at a fraction of the current price by leveraging recent advancements in spray coating techniques. The Axial III system applies traditional coatings in one-half the time and at one-half the cost of the current systems. In addition to its ability to apply wear resistant coatings, the Axial III system can apply thermal barrier coatings and modern nano-based coatings at the same ratio of cost savings.

FY 2008 Output: Contracted for the test Article.

FY 2009 Planned Output: Complete testing and publish test report 15 September 2009.

FY 2010 Planned Output: Procure additional Systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Aircraft Arresting System for F-22 and JSF (Air Force)	0.706	1.527		

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Outcome: To provide a previously unavailable functionality and enhanced capability by safely and controllably decelerating the full array of USAF fighter aircraft without imparting excessive hook-loading and dangerous end-of-arrestment aircraft rollback. This evaluation will provide a complete dual-disc BC11 braking system, including all associated hardware, software, and required spare consumables shall be provided. All necessary installation, operational, and maintenance instructions will be included. HQ ACC/A7OI, Langley AFB, Virginia will evaluate the BC11 computer-controlled caliper-disk aircraft arresting system from Scama of Vderstad, Sweden. As new aircraft, such as the F-22 and Joint Strike Fighter (JSF), are introduced into the Air Force's inventory, the 40 year old BAK-12 aircraft arresting system has become overburdened; it cannot be adjusted to safely stop an F-22 throughout the F-22's full operational range of stopping speeds without overstressing the tail hook and aircraft structure of the lighter-weight F-16. The BC-11 will provide previously unavailable functionality and enhanced capability by safely and controllably decelerating the full array of USAF fighter aircraft without imparting excessive hook-loading and dangerous end-of-arrestment aircraft rollback. Since the BC11's computer controls include extensive self-diagnostics and would provide availability feedback to the airfield tower, as well as automated recordkeeping, the system would require significantly less maintenance and support, which in turn would result in overall lower life-cycle costs.

FY 2008 Output: Test article contracted for with delivery scheduled for March 2009.

FY 2009 Planned Output: Complete testing and publish test report 15 September 2009.

FY 2010 Planned Output: Procure additional Systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Family of Hawkmoor Limited Burners (Army)	0.826	0.762	

Outcome: To eliminate the need for a High Mobility Multi-purpose Wheeled Vehicle (HMMWV) or a 2kW generator when operating Company-sized, mobile Army field feeding systems and components. To enhance the ability of field feeding equipment to be utilized in forward and remote locations. To reduce the fuel consumption rate of field kitchens and the overall logistics tail of Army field feeding. To improve the overall reliability, availability, and maintainability (RAM) characteristics of mobile field feeding systems. The primary outputs and efficiencies will be demonstrated as follows: (1) high RAM characteristics for integrated system of Hawkmoor burner and Self-powered Tray Ration Heater (STRH) (2) 40-Watt or less power requirement by burner (3) no reduction in ration heating time for integrated burner and heater tank system. RDT&E Cost Savings: \$1.500 million. Procurement Cost Savings: \$0.318 million. O&S Cost Savings: \$33.900 million. Other Benefits: Capability to integrate burner/STRH combination into field feeding systems used by multiple services.

FY 2008 Output: Developed project strategy plan for tests and acquisition. Awarded contract to obtain five Hawkmoor burners for use in testing program. Purchased two Self-powered Tray Ration Heaters (STRH) with contracts that were awarded as part of the STRH program. Each STRH was integrated with a Hawkmoor burner. Developed test plans and conducted burner testing at Natick. Testing performed included fuel consumption rate, energy output, efficiency, power requirements, and a preliminary evaluation of burner reliability and maintainability. Prepared detailed test plan and began conduct of limited technical testing of burner integrated into STRH at Aberdeen Test Center, MD.

FY 2009 Planned Output: Continue limited technical testing of burner integrated into STRH at Aberdeen Test Center, MD.

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FY 2010 Planned Output: Completion of technical testing at Aberdeen Test Center, MD. Development of detailed test plan and conduct of a User Evaluation of the Self-powered Tray Ration Heater integrated with Hawkmoor burner. Army Test and Evaluation Command will prepare a test report and system evaluation report for burner integrated into Self-powered Tray Ration Heater. Completion of a system performance specification. Transition of the project to procurement. Transition manager is PM Force Sustainment Systems.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Fire Control System for Special Operation Forces (SOF) Combat Assault Rifle (SCAR) Grenade Launcher (SOCOM)	1.145	1.057	

Outcome: This project will extend the effective range of the Enhanced Grenade Launcher Module, which is affixed to the Special Operations Forces Combat Assault Rifle (SCAR), from 200 to 600 meters. Primary Outputs and Efficiencies: This project integrates the fire control and ammunition programming technology that is necessary to fire a medium velocity 40mm programmable round from the SCAR, in an effort to counter the current Rocket Propelled Grenade (RPG) threat. RDT&E cost avoidance is estimated at \$250.000 million. An estimated savings in combat operations of \$15.000 million per year are realized. Fielding reduction is greater than 3 years. Completion date is 30 Sept 2009.

FY 2008 Output: Project approval and Integrated Product Team formation. Initial FCT funds received. Contract preparation and award for Phase I. Continue project and test planning. Fabrication and integration of test articles.

FY 2009 Planned Output: Technical/Safety Testing (Phase 1). Initial System Demonstration and Limited User Assessment. Delivery of Test Articles. Technical and Safety Testing (Phase 2); Second User Assessment. Prepare Capability Production Document and Milestone C Decision.

FY2010 Planned Output: Complete FCT Closeout Report 1Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Hand-Held Laser Welder (HHLW) (Air Force)	0.696	1.007	

Outcome. To provide A fully qualified Technical Readiness Level Nine (TRL 9) self-contained, field-deployable, gas-shielded, hand-guided laser-welding device for the in-theater repair of strategic military components, specifically those constructed of exotic titanium and other strategic alloys. The 76PMXG/QI at Tinker AFB, Oklahoma will evaluate a Hand-Held Laser (HHLW) developed by Laser Zentrum Hannover e.V (LZH) / S.E.T., LLC located in Hannover, Germany. Currently this capability is only available at the Depot level. Critical components, such as the B-2 aft deck, which, up to this point, could only be repaired at depot level, can be in-theater repaired. The HHLW unit is self-contained, field-deployable, and can withstand extended exposure to the elements. Welding of thin parts also becomes possible with less potential for warping or burn-through. This extends HHLW benefits to new repair applications that are impractical with automated systems and, due to its compact size, can reach otherwise inaccessible locations. With this evaluation the benefits of Laser Welding out of the depot and onto the battlefield where it can reduce the cost and time to repair and will provide increased asset utilization to the warfighter.

FY 2008 Output: Procured the test Article and commenced evaluating the system.

FY 2009 Planned Output: Complete testing and certification and publish final test report August 2009.

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FY 2010 Planned Output: Procurement.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
M1A1 120MM Multi-Purpose High Explosive (MPHE) Munition (Navy)	1.413	1.762		

Outcome: A successful FCT will provide the United States Marine Corps (USMC) with 120MM Multi-Purpose High Explosive Tank Ammunition for the M1A1, being competed by Rheinmetall Waffe Munition/L-3 of Germany and General Dynamics-Ordinance and Tactical Systems of Norway. A two-year project under sponsorship of the FCT and Marine Corps Systems Command (MARCORSYSCOM), Program Manger (PM) Tank Systems. Rounds will be transitioned to deployed USMC forces at the end of CY 2008. Projected completion of all testing and qualification will be FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) A tank round capable of reducing structures and assisting dynamic entry for infantry, while retaining its ability to destroy vehicles; (2) consolidate four different tank rounds into one round encompassing point detonation, delay, and airburst capabilities; (3) increase ammunition effective range by 833 percent, provide improved blast fragmentation, and reduce the logistical burden while maximizing the M1A1s ammunition load; and (4) avoid potential added RDT&E costs of \$169 million, while providing a ROI of 82:1.

FY 2008 Output: Completed Test Planning and Received Foreign Test Data at the beginning of 1Q FY 2008. Received FCT funding at the end of 2Q FY 2008. Received 120mm MPHE Test Cartridge for continuity test 4Q FY 2008.

FY 2009 Planned Output: Complete Source Selection Down-Select by end of 1Q FY 2009. Receive initial test articles and begin Point Detonation Qualification Testing during 1Q FY 2009. Complete PD Qualification Testing, and Limited User Evaluation by end of 2Q FY 2009. Complete WSERB Certification by mid 3rd Qtr. Complete Procurement Decision by end of 3Q FY 2009.

FY 2010 Planned Output: Complete User Evaluation by end of 2Q FY 2010. Provide a Full Production Decision, Technical Test Report, and Close-out Report by the end of 3Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Programmable High Explosive Dual Purpose Ammunition (SOCOM)	1.075	1.570		

Outcome: This project will produce a 40mm high-velocity Programmable-High Explosive Dual Purpose (P-HEDP) round for the Advance Lightweight Grenade Launcher (ALGL) MK47 Weapon System. Primary Outputs and Efficiencies: P-HEDP ammunition will consist of components derived from two other successful FCT projects combined into the next priority round from the ALGL operational requirement. These components will be assembled, tested, qualified, and then released for SOF use. RDT&E cost avoidance for this type of effort is \$9 million. Combined operations and support and procurement cost avoidance is expected to be \$27.000 million. Completion date is 10 September 2009.

FY 2008 Output: Project approval and Integrated Product Team formation. Initial FCT funds received. Test article contract awarded.

FY2009 Planned Output: Delivery of test articles June 2009. Technical testing at manufacturing facility in Norway and Naval Surface Warfare Center (NSWC) Crane Indiana, Joint Safety Review Board approval, operational testing and Milestone C Decision.

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FY2010 Planned Output: Complete FCT Closeout report 1Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Signaling Colored Smoke Grenades (SCSG) (Navy)	0.713	1.046	

Outcome: A successful FCT will provide the United States Marine Corps (USMC) with a family of Signaling Colored Smoke Grenades for procurement and immediate fielding to the Warfighter. A two year project under sponsorship of the FCT and MARCORSYSCOM, PM Ammunition. Projected testing completion date will be FY 2009. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) Readily producible and cost efficient Green/Yellow/Red/Violet/White colored smoke grenades to meet operational requirements for ground-to-air and ground-to-ground signaling; (2) Improvements for increased smoke duration, safer initiation system by reducing flame height, decreased smoke toxicity, more environmentally friendly components, reduced weight, Insensitive Munitions compliance, and denser smoke to enhance visual recognition from long distances; (3) Increased availability for training purposes; and (4) Avoid RDT&E and Procurement costs of \$0.853 million and \$3.300 million while providing a Return on Investment (ROI) of 10:1.

FY 2008 Output: FCT Project Approved, Army Jointed the FCT effort with the Marine Corps as the lead, Initiated draft Memorandum of Agreement (MOA) between Army and Marine Corps, and Initiated Statement of Work (SOW), Key Performance Parameters (KPPs), in 1Q. During the 2Q FY 2008 Program Manager (PM) Ammo briefed the Military Legislative Assistants and continued the draft MOA. The Army and Marine Corps signed the Memorandum of Agreement (MOA), Statement of Work (SOW), and Performance Specification, as well as initiated the drafted solicitation in the 3Q FY 2008. Both Marine Corps and Army have concurred with the SOW and Performance Specification during the 4Q FY 2008.

FY 2009 Planned Output: Initiate Technical Test Planning, complete contract award and receive initial test articles for the FCT effort by end of 1Q FY 2009. Receive additional test articles, initiate test efforts by end of 3Q FY 2009. Complete Phase I Down-selection of the FCT efforts.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Transportable Plasma Waste to Energy System (Air Force)	1.164	1.689	

Outcome: To provide a 10-ton per day system which can efficiently and economically dispose of the entire waste stream in an environmentally sound manner. Air Force Special Operations Command (AFSOC) A7AV (Environmental) at Hurlburt Field, Florida will evaluate an advanced waste to energy system developed by PyroGenesis a Canadian company located at Montreal, Canada. Current methods typically involve expensive contracts with local waste haulers that remove and transport the waste to a landfill. At remote locations, open pit burning is usually involved, with a myriad of operational security, environmental health, and other serious exposure risks to our troops. Additionally, in many remote locations, gravel is a valuable asset that is not locally available, and troops are put at risk from IEDs and ambushes when transporting gravel to the remote location. Executive Order 13423 mandates the Federal Government reduce energy consumption, increase the use of green products, reduce green house gases, and divert or reduce solid waste. The Plasma Waste to Energy System will meet all these goals, while producing electricity and valuable by-products (i.e. gravel and metal ingots). This compact, land-based system will accept any type of gaseous, liquids or solid without the need for pre-sorting, including hazardous waste, food waste, biological/medical waste solid waste including, tires, metal, and petroleum sludge and is a net energy producer.

FY 2008 Output: Contracted for the test article, ordered parts and begin fabrication of the system.

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FY 2009 Planned Output: Complete fabrication of the system during the 3Q FY 2009, Train personal and commence limited day to day operations.

FY 2010 Planned Output: Full operational status. Completion date and publishing of the Final Report in 2Q FY 2010. Procurement.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Three-Dimensional (3D) Visualization of the Battlespace (Army)	0.821	1.657		

Outcome: Test the Arisawa three-dimensional (3D) stereoscopic Liquid Crystal Displays (LCD) to provide Force XXI Battle Command Brigade and Below - Blue Force Tracking Systems with high-resolution 3D mapping and tactical data display capability. Validate the ability of Arisawa displays to enhance visualization capabilities of C2 software, built with commercial-off-the-shelf applications. Warfighters can immerse themselves in the terrain and tactical data during mission planning, situational awareness and after-action reviews. Research Development Test and Evaluation (RDT&E) Potential Savings of \$12.000 million. Contractor has spent over \$10.000 million in developing/testing/debugging their system. Similar to many hardware/software products, the contractor will continue to invest in improvements estimated over \$12.000 million in FY 2008. If the Foreign Comparative Testing (FCT) verifies all claims, there is great potential to apply this technology to various Army Battle Command System (ABCS) and intelligence efforts beyond the basic application identified for dramatically increasing the potential RDT&E cost avoidances. Potential Manufacturing Savings of \$10.000 million. Both hardware and software products are commercially available.

FY 2008 Output: Began the test planning activities and contract/acquisition planning.

FY 2009 Planned Output: Phase II of the testing will focus on the usability and human factors of the Arisawa technology with the ABCS in Tactical Operations Center (TOC) and On the Move (OTM) applications using the resources in the Communications Electronics Research, Development & Engineering Center (CERDEC) Command & Control Directorate (C2D) C4ISR Automated Virtual Environment (CAVE) facility. Phase III testing will be conducted at Fort Dix, NJ, testing will be conducted by CERDEC Product Manager C4ISR. The focus of Phase III will be suitability of use in a field environment and human factors issues related to field use.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
5.0-Inch Steel Strip Laminate (SSL) Rocket Motor Case (Navy)	0.400	1.435		

Outcome: A successful project will provide the U.S. Navy /USMC the flexibility to use Zuni 5.0-Inch Rockets during shipboard operations. This project will demonstrate the capability of the Steel Strip Laminate (SSL) rocket motor case technology that may provide potential safety improvements to the Zuni Rocket System. At present, shipboard use of the Zuni requires a waiver because the current system is not Insensitive Munitions (IM)-compliant. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) enhanced IM compliance of the rocket motor using the SSL Case in Fast and Slow Cook-Off environments; (2) no degradation of performance and operational use; (3) additional flexibility in using the Zuni during shipboard operations for the Navy/Marine Corps; and (4) avoid RDT&E costs of \$6.000 million.

FY 2008 Output: Contractor held Design Review, modified tooling, and manufactured/delivered cases. Contractor submitted RFDs to accept as-built SSL Cases. Obtained Interim Hazard Classification. Created test plans and began routing for approval through IM Review Board, Naval Ordnance Safety and Security Activity (NOSSA).

FY 2009 Planned Output: Finalize/approve test plans. Conduct Test Readiness Review brief. Conduct IM and ballistic testing. Conduct Insensitive Munitions Review Board brief. Create FCT Demonstration Test Report. Hold Phase I Close-out meeting.

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**** Note:** Phase II is contingent on successfully completion of Phase I and sponsor approval. Therefore, outputs for Phase II (Qualification) are not listed above.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
20 MM Training System for Carl Gustaf (SOCOM)		0.857	2.178	

Outcome: This project will qualify a training system for the Carl Gustaf recoilless rifle. The Carl Gustaf is the primary anti-armor and anti-personnel weapon for the US Army Special Operations Command and US Naval Special Warfare Command warfighters. Primary Outputs and Efficiencies: Using 20mm High Explosive Dual Purpose 502 sub-caliber training rounds and an 84mm weapon adapter will provide cost efficient, realistic training; while ensuring more expensive 84mm ammunition is available for mission accomplishment. The RDT&E potential savings is \$3.400 million and procurement is \$145.000 million. Total operations and support savings estimated at \$46.000 million. Completion date is 30 Sept 2011.

FY 2008 Output: Project approved.

FY 2009 Planned Output: Contracted for test articles. Conduct test planning, prepared spend plan and summary test plan. Begin system Level 1 testing.

FY 2010 Planned Output: Continue system Level 1 testing. Conduct system Level 2 testing. Integration hardware. Conduct minimal safety testing to obtain safety releases. Type classification for limited production units. Conduct limited user testing.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
25 MM Round for Joint Strike Fighter (JSF)/F-35 (Air Force)		1.057	0.330	

Outcome: This project will qualify this 25mm round for the gun to be used on the JSF. A Dual-purpose 25mm x137 medium caliber ammunition round manufactured by RWM Schweiz (Rheinmetall Defense) AG in Switzerland will be tested by the 28th Test Wing at Eglin AFB. The primary outputs and efficiencies to be evaluated is to satisfy the USAF F-35/A aircraft's unique gun system requirement of defeating both soft targets and lightly armored vehicles with a single ammo type. No round is currently qualified to meet the unique lethality requirements for the JSF.

FY 2009 Planned Output: A request will be sent to RWM Schweiz for the delivery of 100 rounds. These rounds will be utilized in early phases of the program to perform a preliminary evaluation of the gun/ammo interface, to validate round integrity, and to assess projectile effectiveness. After successfully completing the first phase of the FCT, an addition 10,000 rounds will be acquired from the vendor in order to perform the qualification test.

FY 2010 Planned Output: Initiate Weapons Systems Explosive Safety Review Board (WSESRB)/Non-Nuclear Munitions Safety Board (NNMSB) clearance, prepare and publish Decision Package.

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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
COSMO-SkyMed Constellation Evaluation (Air Force)		1.029	0.470	

Outcome: COSMO-SkyMed a constellation of four Synthetic Aperture Radar (SAR) satellites manufactured by EGEOS in via Cannizzaro, Italy that will provide a rapid revisit, 24 hour, global coverage of the planet a capability which does not yet exist in the commercial remote sensing arena. Resolutions vary between sub-meter through several tens of meters, depending on acquisition mode, and multi-polarization modes will provide different aspects of each target. The primary outputs and efficiencies to be evaluated are the improvements it will make to our imaging capabilities. Current technology involving commercial SAR imagery is limited by resolution, polarization, and global surveillance coverage. Current operational commercial SAR satellites image down to 8 meters in resolution. COSMO-SkyMed is anticipated to provide sub-meter resolution images with a rapid revisit, 24 hour, global coverage of the planet. The ability to accomplish this is based on four Cosmo satellites in the same orbit path, and will operate in a cooperative manner. For the warfighter and mission planner, this capability will provide four times the surveillance capability at an eighth of the resolution, along with quad polarization. No other commercial SAR satellite platform can offer this capability or operational redundancy. Additionally, current commercial SAR satellites are nearing the end of their lifespan, and need to be replaced by more advanced systems.

FY 2009 Planned Output: Test planning occurred during 2Q FY 2009. Procure and receive test article, Complete initial testing and publish report.

FY 2010 Planned Output: Complete user assessment and operational testing. Completion date and final report 4th qtr.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Enhanced Fuze for 70MM Warhead (SOCOM)		1.977	1.771	

Outcome: This project will test and evaluate an electronic time delay that has a super quick mode, which allows the pilot to change the fuze settings in-flight; to engage a wider range of targets. Special Operations Little Bird helicopter pilots are missing targets of opportunity, and shooting through targets, due to the inability to reset their rocket fuzes once airborne. Primary Outputs and Efficiencies: Total Research Development Test and Evaluation (RDT&E) cost avoidance exceeds \$67.000 million. An Indefinite Delivery Indefinite Quantity (IDIQ) contract was established for 70mm rockets and fuzes, and will be used by Special Forces for the next 20 years. Completion date is estimated for 30 Sep 2011.

FY 2008 Output: Proof of concept demonstration was successfully conducted. Received project approval.

FY 2009 Planned Output: Receive project funding. Contracted for test articles.

FY 2010 Planned Outputs: Receive test articles and conduct Technical and Safety testing. Obtain Safety Release.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
H-53 Low Cost and Reliable Generator Control Unit (Navy)		1.557	0.275	

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Outcome. This project will test a low cost and higher reliability Generator Control Unit (GCU) to be used on H-53 aircraft. H-53 Program needs a second source/replacement for the current obsolete Bendex 21B17-6 for the H-53 Aircraft GCU. Program will evaluate a state-of-the-art GCU currently used on foreign aircraft that provides greater reliability. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) project unit cost goal is \$5-6 Thousand; (2) reliability goal is 16 thousand Mean Time Between Failure (MTBF) hours; and (3) cost savings worth more than \$8.000 million.

FY 2009 Planned Output: Complete Sources Sought Review for H-53 Generator Control Unit. Obtain sole-source Justification and Authorization (J&A), Initiate Request for Proposal (RFB) to perspective vendor, complete contracting efforts and begin FCT qualification effort. Complete Generator Control Unit qualification, test on H-53 aircraft, issue final report.

FY 2010 Planned Output: Begin Production of H-53 GCUs.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Improved Ownship Speed Sensing (Navy)		0.557	0.192	

Outcome: This project is to test a rodmeter that is of superior design in terms of configuration (e.g. shark fin or flush mount), electronics and materials (able to withstand higher stress). The current rodmeters used are based on 1950s design and materials, that are breaking under stress of own ship maneuvering and obsolescence. The Navy will test non-developmental items from Aeronautical & General Instruments, LTD, United Kingdom. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) improve the performance of the overall navigation system by reducing position and velocity errors; (2) allow a submarine to operate in a stealthier fashion, (3) allow a submarine to operate longer in the littoral regions; and (4) avoid potential added Research Development Test and Evaluation (RDT&E) costs of \$1.000 million.

FY 2009 Planned Output: Received initial funding late 1Q FY 2009. Procurement of test articles anticipated 3Q FY 2009. Complete test planning procedures/development for land based testing 3Q FY 2009 and at-sea test planning 4Q FY 2009. Conduct land based (water flow tank) 4Q FY 2009.

FY 2010 Planned Output: Install item on surface ship test platform and conduct performance testing at-sea late 1Q FY 2010. The technical test report and project closeout report are anticipated to be completed by 4Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
LAW Rocket Motor IM (Insensitive Munitions) Improvement (Navy)		1.757	1.358	

Outcome: A successful FCT will provide the United States Marine Corps (USMC) with a fully IM compliant Light Anti-Tank Weapon (LAW) system to increase overall safety and reduce the severe logistical burden associated with storage and transportation of a non-IM compliant munition. A two year project under sponsorship of the FCT and Marine Corps Systems Command (MARCORSYSCOM), Program Manager (PM) Ammunition. Projected testing completion date will be CY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) Improved safety for system operator/handler; (2) Reduce severity of reaction to IM environments; (3) Minimize collateral damage caused by accidental rocket motor initiation; (4) Significantly reduce the logistic burden of transporting non-IM compliant munitions; and (4) Minimize Research Development Test and Evaluation (RDT&E) costs of \$5.000 Million while providing a Return on Investment (ROI) of 9:1.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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FY 2009 Planned Output: Initiate contract preparation and complete contract award during 2Q FY 2009. Initiate Technical Test Planning during 2Q FY 2009 and anticipate completion during 4Q FY 2009. Fabrication of Test Articles to during 3Q FY 2009 and delivery anticipated during 4Q FY 2009. Initial IM Testing scheduled to begin during 4Q FY 2009.

FY 2010 Planned Output: Initial IM Testing scheduled to complete during 1Q FY 2010. Qualification Testing scheduled during 3Q FY 2010. User Evaluation scheduled to begin in 2Q FY 2010 and complete by the end of 3Q FY 2010. Receive certification and complete test report, Close-Out Report and Milestone C Decision during 4Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
M1A1 Crew Cooling System (Navy)		1.607	0.583	

Outcome: A successful FCT will provide the United States Marine Corps (USMC) with an adequate cooling solution to the entire M1A1 crew. A two year project under sponsorship of the FCT and Marine Corps Systems Command (MARCORSYSCOM), Program Manager (PM) Tank Systems. Projected testing completion date will be FY 2010. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) Significantly increase the overall safety of M1A1 crewmembers, thus resulting in improved mission endurance and operational effectiveness; (2) Greatly reduce the logistical burden associated with rotating tank crews due to rapid dehydration; and (3) Avoid RDT&E and Procurement costs of \$5.000 million and \$10.000 million while providing a Return on Investment (ROI) of 22:1.

FY 2009 Planned Output: Initiate contract preparation and complete contract award during 2Q FY 2009. Initiate Technical Test Planning during 2Q FY 2009 and anticipate completion during 3Q FY 2009. Fabrication of Test Articles to begin during 3Q FY 2009 and delivery anticipated by the end of 4Q FY 2009.

FY 2010 Planned Output: Lab/Integration testing scheduled to begin in 1Q FY 2010 and complete by middle of 2Q FY 2010. M1A1 Operational Testing scheduled to begin in 2Q FY 2010 and complete by the end of 3Q FY 2010. Complete Test Report, Close-Out Report and Milestone C Decision during 4Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Multi-fuel Submersible Outboard Engines (SOCOM)		0.957	0.633	

Outcome: This project integrates patented Italian air-assisted direct-injection fuel delivery systems, into commercial off-the-shelf, lightweight, submersible outboard engines; to produce non-gasoline burning outboard engines capable of using multiple fuels. Primary Outputs and Efficiencies: Special mission units have an urgent requirement to replace their submersible outboard engines to support their many littoral missions. DOD Directive 4140.25 Management Policy for Energy Commodities and Related Services mandates the conversion of combat systems to common, less combustible fuels by 2010. This project will ensure compliance to this DOD Directive. Potential RDT&E savings for this engine is \$8.000 million and the collective operations and support cost savings are \$31.250 million. Completion date is 30 Sept 2011.

FY 2009 Planned Output: Funding received. Conducted project planning. Preparations for Phase I proof of concept: Prototype assembly. Prototype test and procure contract for test articles.

FY 2010 Planned Output: Receive test articles Phase II, install Piaggio injection system, conduct dynamometer test of modified engine, test modified engine, and make engine modifications. Make final engine modifications.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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Photonics Mast Tech Insertion on the Virginia Class Submarine (Navy)	1.457	1.155	
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Outcome: A successful FCT project will provide the USN an alternative Photonics Mast for the VIRGINIA Class and OHIO Class SSGN submarines. The purpose of this effort is to correct a reliability shortfall with the current system that is impacting operational availability. Photonics Mast system provides the imaging, navigation, electronic warfare, and communications function for critical safety of ship and tactical intelligence applications. The current system has significant reliability and maintainability issues. This FCT will test a foreign mast that offer the potential increase in reliability and maintainability, more modular in design and lower overall cost to the Navy. The primary outputs and efficiencies to be demonstrated in the FCT are: (1) modular construction of the FCT photonics mast will allow rapid maintenance actions and replacement of functional elements of the sensor at the Intermediate Maintenance Activity (IMA) vice having to return the sensor to the factory for service; (2) the FCT technology will be upgradeable (Technology Insertion/Refresh): Implementation of High Definition Color Cameras (HDTV) will provide a much improved imagery to the operator; (3) the new system will be more reliable when compared to the legacy Kollmorgen photonics mast; and (4) avoid potential added Research Development Test and Evaluation (RDT&E) costs of over \$30.000 million.

FY 2009 Planned Output: Prepare specifications and award contract. Develop test plan and test schedule. Develop and attain approval of Temporary Alteration (Temp-alt) for systems installation, integration and operational testing.

FY 2010 Planned Output: Attain approval for shipboard installation and integrations of test article. Install and integrate test article. Perform pier-side systems test and integration. Perform at-sea testing for systems evaluation and performance.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Precision Sniper Rifle (Foreign and Domestic) (SOCOM)		1.220	1.320

Outcome: This project will evaluate sniper rifle systems that are more lethal and capable of accurately engaging enemy personnel out to ranges of 1,500 meters. Giving the Special Operations Forces (SOF) Sniper the ability to create more stand-off distance during engagements will increase survivability. This new range will also allow for peak-to-peak engagements on the mountain tops of Afghanistan in the prosecution of OCO. Primary Outputs and Efficiencies: The Precision Sniper Rifle Capabilities Development Document (CDD) is a plan to field a complete sniper system with: weapon, optics, noise and flash suppression, ammunition and support articles. This project will capitalize on the availability of recently developed sniper systems that "out perform" currently fielded SOF sniper systems, and integrate them into the Family of SOF Sniper Rifles Program. Research Development Test and Evaluation (RDT&E) cost avoidance associated with this project is \$1.390 million. Completion date is 30 Sept 2010.

FY 2009 Planned Output: Prepared and issued solicitation and received proposals and product samples. Performed initial Go/No Go Testing. Perform Developmental Test and User Assessment (Phase 1). Conduct source selection.

FY 2010 Planned Output: Award contract for successful Precision Sniper Rifle Systems candidates. Receive Engineering Test Units. Perform Weapon and Ammunition Developmental Test and Safety Tests. Receive Safety Release. Conduct Developmental Test (Phase 2). Conduct User Assessment (Phase 2). Revise Precision Sniper Rifle Capability Development Document (CDD) to Capability Production Document (CPD). Prepare decision packet and FCT Close-out Report. Milestone C Decision is scheduled for 4Q FY 2010.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Pyrolysis Solid Waste Disposal With Energy Recovery (Army)		1.849	1.430

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605130D8Z - Foreign Comparative Testing (FCT)	PROJECT P130
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Outcome: This project will demonstrate and evaluate a containerized system that uses Pyrolysis technology to dispose of approximately 2 tons of solid waste per day within a Force Provider base camp. This technology will help reduce or eliminate the need for outside contractors to access the base camp to dispose of solid waste which reduces potential threats to the force. The primary outputs and efficiencies is the system will be self-powering reducing the need for additional fuel to operate the system, and the energy recovery of the pyrolysis will reduce the amount of fuel needed to support the base camp thereby reducing the number of fuel trucks on the road on a daily basis and allows ground commanders to focus assets normally assigned to securing fuel trucks to other more critical missions. RDT&E cost savings estimated at \$9.900 million. Operations and Life-Cycle Cost avoidance/savings is estimated at \$0.347 million. When fully funded, the potential annual savings is estimated at \$9.716 million.

FY 2009 Planned Output: Formed Integrated Product Team (IPT). Received initial vendor proposal. Completed 3 technical design/requirements meetings with vendor. Submitted a revised Statement of Work (SOW) to the vendor. Completed staffing of the contractual Justification and Authorization (J&A), awaiting final signature.

FY 2010 Planned Output: Complete Developmental Testing at Aberdeen Test Center in the 1Q FY 2010. Operational testing will be conducted at National Training Center in 2-3Q FY 2010. The Test Report and Project Close-Out report will be completed in 4Q FY 2010. Any design changes will be incorporated, any additional required testing will be planned for, and Milestone C preparation and documentation will be scheduled to be completed in FY 2011 for a Milestone C decision.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2010 Plans			22.347	

FY 2010 Plan: The FCT program will continue to fund testing activities on an estimated 13 continuing projects executing \$12.707 million. Remaining funding will be used to initiate new start FCT projects selected from the FY 2010 FCT proposal process. The FY 2009 final proposal selection process is scheduled for the fourth quarter FY 2009.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
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Labs/Centers:

	TBD	TBD	The majority of funding for this Program Element is forwarded directly to the Services and US Special Operations Command (USSOCOM) who manage all contracting and support requirements for the FCT projects identified in this budget exhibit (i.e., R-2a).	
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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605161D8Z - Nuclear Matters						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P161 Nuclear Matters	4.354	4.451	6.474					

A. Mission Description and Budget Item Justification:

The purpose of the Nuclear Matters program, formerly called Counterproliferation Support, is to sustain the U.S. nuclear deterrent posture. The funds for this program are used to support research, development, test and evaluation efforts as well as studies and analyses for nuclear weapons security; use control; nuclear weapons stockpile safety, survivability and performance; and office management. Funds are also used to develop and implement plans for stockpile transformation; infrastructure analyses and assessments; DoD-NNSA Nuclear Weapons Council activities, as mandated by Title 10 USC, section 179; radiological and nuclear emergency response efforts; and manage international programs of nuclear cooperation, particularly with respect to enhancing international nuclear safety and security and office management. In fiscal year 2004, this program incorporated additional responsibility for policy development and implementation, and operations and oversight of nuclear weapons physical security and Personnel Reliability Programs for the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605161D8Z - Nuclear Matters
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	4.475	4.475	4.587	
Current BES/President's Budget (FY 2010)	4.354	4.451	6.474	
Total Adjustments	-0.121	-0.024	1.887	
Congressional Program Reductions				
Congressional Rescissions		-0.024		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.112			
Other	-0.009		1.887	

Funding has been realigned in the FY 2010 to provide greater oversight and analysis of enterprise-wide nuclear surety efforts that impact the Department's nuclear deterrent capability.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of DATSD (Nuclear Matters). Success is also measured by the currency of information and usability of the website, timeliness and responsiveness of reports due to Congress, performance in various response exercises, and feedback from a number of senior-level government organizations that DATSD (Nuclear Matters) supports.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605161D8Z - Nuclear Matters				PROJECT P161		
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P161 Nuclear Matters	4.354	4.451	6.474					

A. Mission Description and Budget Item Justification:

The purpose of the Nuclear Matters program, formerly called Counterproliferation Support, is to sustain the U.S. nuclear deterrent posture. The funds for this program are used to support research, development, test and evaluation efforts as well as studies and analyses for nuclear weapons security; use control; nuclear weapons stockpile safety, survivability and performance; and office management. Funds are also used to develop and implement plans for stockpile transformation; infrastructure analyses and assessments; DoD-NNSA Nuclear Weapons Council activities, as mandated by Title 10 USC, section 179; radiological and nuclear emergency response efforts; and manage international programs of nuclear cooperation, particularly with respect to enhancing international nuclear safety and security and office management. In fiscal year 2004, this program incorporated additional responsibility for policy development and implementation, and operations and oversight of nuclear weapons physical security and Personnel Reliability Programs for the protection of tactical, fixed and nuclear weapons systems, DoD personnel and DoD facilities.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Nuclear Weapons Council (NWC) and Committee of Principals (CoP)	1.000	1.050	1.040	

FY 2008 Accomplishments:

- Continued to manage the activities on the Congressionally mandated Joint DoD-DOE Nuclear Weapons Council and its support committees to include the Nuclear Weapons Council Standing and Safety Committee, the Compartmented Advisory Committee and the Action Officer group.
- Prepared, staffed, and submitted for review by the Senior National Security Presidential Directive (NSPD-28) Oversight Committee and its support committee, the NSPD-28 Oversight Committee, recommendations from boards, panels and commissions regarding the surety of DoD nuclear assets.
- Prepared, staffed, and submitted annual reports to the President and the Congress to include the FY 2008-2014 Nuclear Weapons Stockpile Memorandum and Requirements Planning Document, FY 2007 Report on Stockpile Assessment, FY 2007 Joint Surety Report and the FY 2007 NWC Report to Congress.
- Conducted a week-long trip to several nuclear weapons complex sites for over sixty individuals within the nuclear weapons community including senior DoD/DOE officials.
- Maintained oversight and managed departmental compliance on all NSPD-28 implementation efforts across all Nuclear Command and Control System (NCCS) Departments and Agencies through the NCCS CoP and its subordinate committees.
- Managed the response to Presidential guidance concerning the FY07 NCCS Assessment Program.
- Continued to support the Nuclear Weapons Council and its associated functions.

FY 2009 Plans:

- Oversee NWC activities regarding the development of a responsive infrastructure for stockpile support.
- Continue to manage the activities of the Congressionally mandated Joint DoD-DOE Nuclear Weapons Council and its support committees to include the Nuclear Weapons Council Standing and Safety Committee, the Compartmented Advisory Committee and the Action Officer group.
- Prepare, staff, and submit annual reports to the President and the Congress to include the FY 2009-2015 Nuclear Weapons Stockpile Memorandum and Requirements Planning Document, FY 2008 Report on Stockpile Assessment, FY 2008 Joint Surety Report and the FY 2008 NWC Report to Congress.

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0605161D8Z - Nuclear Matters

P161

- Prepare, staff, and submit for review by the Senior NSPD-28 Oversight Committee, and its support committee, the NSPD-28 Oversight Committee, status reports regarding the implementation of recommendations made by boards, panels and commissions regarding the surety of DoD nuclear assets.

FY 2010 Plans:

- Facilitate nuclear weapons complex site visits for individuals within the nuclear weapons community, including senior DoD/DOE officials.
- Prepare, staff, and submit annual reports to the President and the Congress to include the FY 2010-2016 Nuclear Weapons Stockpile Memorandum and Requirements Planning Document, FY 2009 Report on Stockpile Assessment, FY 2009 Joint Surety Report and the FY 2009 NWC Report to Congress.
- Continue to manage the activities on the Congressionally mandated Joint DoD-DOE Nuclear Weapons Council and its support committees to include the Nuclear Weapons Council Standing and Safety Committee, the Compartmented Advisory Committee and the Action Officer group.

Accomplishments/Planned Program Title:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
International Programs	0.500	0.500	0.500	

FY 2008 Accomplishments:

- Continued FY 2007 initiatives.
- Developed arrangements and managed US-UK nuclear warhead enhanced collaboration activities.
- Provide key international partners, in the nuclear weapons establishment, assistance with program overhaul and forward momentum - upgrade peer review potential in this area.
- Sponsor international partners at national-level nuclear weapons accident/incident exercises.
- Contribute to confidence building measures with close nuclear power nations.

FY 2009 Plans:

- Build upon FY 2008 initiatives.
- Execute confidence building programs of cooperation with international partners.
- Sponsor international partners at national-level nuclear weapons accident/incident exercises.

FY 2010 Plans:

- Build upon FY 2009 initiatives.
- Execute confidence building programs of cooperation with international partners.
- Sponsor international partners at national-level nuclear weapons accident/incident exercises.

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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Nuclear Surety	1.054	1.050	1.040

FY 2008 Accomplishment:

- Continued to develop and coordinate a DoD Nuclear Weapons Physical Security (NWPS) Roadmap.
- Supported the development of an automated risk management tool for physical security.
- Conducted OSD oversight and provide direction for actions taken under DoDD 4540.5, "Transportation of Nuclear Weapons"; DoDI S-5210.82, "Protection of Nuclear Coding Equipment"; DoDD S-5210.81, "United States Nuclear Weapons Command and Control, Safety, and Security"; DoDD S-3150.7, "Controlling the Use of Nuclear Weapons"; DoDD 5210.42 and 5210.42-R, "The DoD Personnel Reliability Program"; and DoDD 5210-.41 and S-5210.41-M, "Physical Security of Nuclear Weapons."
- Updated DoD policy, responsibilities and procedures in DoD publications to include DoDD S-5210.41-M, "Physical Security of Nuclear Weapons."
- Reviewed DoD policy, responsibilities and procedures described in DoDD 5210-.41, ""Security Policy for Protecting Nuclear Weapons."
- Reviewed DoD policy, responsibilities and procedures described in DoDD 3150.2, DoDD 3150.2-M "DoD Nuclear Weapons Safety Program," and DoDD 3150.3, "Nuclear Forces Security and Safety."
- Continued as DoD Sigma 14 Approval Authority (interface with DOE/NNSA).
- Continued to support the operations of the Joint Advisory Committee on Nuclear Weapons Surety (JAC).
- Supported and participated in NATO nuclear weapons policy and oversight groups, including the High Level Group and the Joint Theatre Surety Management Group.
- Continued to support activities that support nuclear surety policy and provide OSD oversight of the Nuclear Surety program.

FY 2009 Plans:

- Complete the DoD Nuclear Weapons Physical Security (NWPS) Roadmap.
- Complete the development of the physical security risk management tool.
- Oversee the implementation of recommendations various boards, commissions, and panels regarding nuclear surety.
- Conduct OSD oversight and provide direction for actions taken under DoDD 4540.5, "Transportation of Nuclear Weapons"; DoDD S-5210.81, "United States Nuclear Weapons Command and Control, Safety, and Security"; DoDD S-3150.7, "Controlling the Use of Nuclear Weapons"; DoDD 5210.42 and 5210.42-R, "The DoD Personnel Reliability Program"; and DoDD 5210-.41 and S-5210.41-M, "Physical Security of Nuclear Weapons."
- Continue to support activities that support nuclear surety policy and provide OSD oversight of the Nuclear Surety program.

FY 2010 Plans:

- Continue to oversee the implementation of recommendations various boards, commissions, and panels regarding nuclear surety.
- Complete the development of the physical security risk management tool.

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- Conduct OSD oversight and provide direction for actions taken under DoDD 4540.5, "Transportation of Nuclear Weapons"; DoDD S-5210.81, "United States Nuclear Weapons Command and Control, Safety, and Security"; DoDD S-3150.7, "Controlling the Use of Nuclear Weapons"; DoDD 5210.42 and 5210.42-R, "The DoD Personnel Reliability Program"; and DoDD 5210-41 and S-5210.41-M, "Physical Security of Nuclear Weapons."
- Continue to support activities that support nuclear surety policy and provide OSD oversight of the Nuclear Surety program.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Stockpile Transformation	1.000	1.050	1.734	

- FY 2008 Accomplishments:**
- Conducted life cycle activities in support of the nuclear weapons stockpile under DoDD 3150.1, "Nuclear Weapons Life Cycle" and DODI 5030.55, "DoD Procedures for Joint DoD-DOE Nuclear Weapons Life Cycle Activities.
 - Continued to manage DoD RDT&E activities for nuclear warheads to include B61, W62, W76, W78, W80 (0,1), B83, W87, W88 Weapons.
 - Supported studies for warhead replacement.
 - Conducted a modernization study for the B61.
 - Conducted trade-off studies on behalf of the Nuclear Transformation Working Group.
 - Continued programs to assess the future of the nuclear weapon stockpile.
 - Supported new Task Forces for strategic systems.
 - Continued to develop and implement a Nuclear Matters knowledge system to help preserve nuclear weapons information for operational improvements and continuity.
 - Provided technical support to maintain strategic materials and nuclear power systems.
 - Continued to develop a nuclear enterprise model for DoD.

- FY 2009 Plans:**
- Continue to conduct life cycle activities in support of the nuclear weapons stockpile under DoDD 3150.1, "Nuclear Weapons Life Cycle" and DODI 5030.55, "DoD Procedures for Joint DoD-DOE Nuclear Weapons Life Cycle Activities.
 - Continue to manage DoD RDT&E activities for nuclear warheads to include B61, W62, W76, W78, W80(0,1), B83, W87, W88 Weapons.
 - Continue to support studies for warhead replacement.
 - Oversee the analysis of low-cost warhead back-up options.
 - Maintain and exercise a nuclear enterprise model for DoD.
 - Continue programs to assess the future of the nuclear weapon stockpile.
 - Continue to support new Task Forces for strategic systems.
 - Continue to provide technical support to maintain strategic materials and nuclear power systems.

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FY 2010 Plans:

- Continue to conduct life cycle activities in support of the nuclear weapons stockpile under DoDD 3150.1, "Nuclear Weapons Life Cycle" and DODI 5030.55, "DoD Procedures for Joint DoD-DOE Nuclear Weapons Life Cycle Activities.
- Continue to manage DoD RDT&E activities for nuclear warheads to include B61, W76, W78, W80(0,1), B83, W87, W88 Weapons.
- Continue to support studies for warhead replacement.
- Continue programs to assess the future of the nuclear weapon stockpile.
- Oversee and evaluate the review of warhead life extension refurbishments.
- Continue to maintain and exercise a nuclear enterprise model for DoD.
- Continue to support new Task Forces for strategic systems.
- Continue to provide technical support to maintain strategic materials and nuclear power systems.
- Conduct analysis of possible warhead replacements using modeling and simulation tools.
- Develop an analytical tool for the evaluation of alternatives for the nuclear enterprise.
- Develop a strategic communications strategy and plan for communicating stockpile options to stakeholders.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Survivability and Weapons of Mass Destruction (WMD)	0.500	0.500	1.140

FY 2008 Accomplishments:

- Assisted Chemical and Bio Defense Programs in publishing a DoD Chemical, Biological, Radiological and Nuclear Survivability directive.
- Began to publish a DoD directive to govern post-detonation nuclear forensics activities.
- Provided direction for DoD and OSD preparations to train for response actions, under DoDD 3150.8, "DoD Response to Radiological Accidents.
- Planned and trained for OSD participation in Diablo Bravo 2008 (DB 08) nuclear weapon accident exercise led by DOE/NNSA.
- Participated in interagency tabletop exercises in preparation for DB 08 and began planning Ardent Sentry 2009 (AS 09).
- Maintained the office Go-Kit and classified website to enhance coordination in the event of a nuclear weapon accident.
- Directed and coordinated the activities of the Nuclear Command and Control System (NCCS) Committee of Principals Subcommittee on Nuclear Weapon Accident Response and the Policy Working Group.
- Continued to implement the DoD Action Plan for assessing vulnerability to High-Altitude Electro-Magnetic Pulse (HEMP) and briefed the EMP Commission on progress multiple times.
- Monitored and advised OSD on the status of DoD capability for Nuclear Weapons Effects Simulators and Simulation.
- Continued to support the DoD executive agency (ASD(Homeland Defense)) for interagency actions concerning Combating Weapons of Mass Destruction at home and abroad.
- Planned and coordinated the activities of the National Nuclear Forensics Steering Committee and Working Group.

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- Began to develop OSD-wide approach to overseeing Global Nuclear Defense missions within DoD.

FY 2009 Plans:

- Continue planning and coordinating the activities of the National Nuclear Forensics Steering Committee and Working Group.
- Publish a DoD directive to govern post-detonation nuclear forensics activities.
- Continue to develop OSD-wide approach to overseeing Global Nuclear Defense missions within DoD.
- Oversee the integration of all DoD nuclear defense capabilities in support of the Global Nuclear Defense Initiative.
- Develop the acquisition strategy for DoD Combating Weapons of Mass Destruction requirements.
- Provide direction for DoD and OSD preparations to train for response actions, under DoDD 3150.8, "DoD Response to Radiological Accidents.
- Maintain the office Go-Kit and classified website to enhance coordination in the event of a nuclear weapon accident.
- Direct and coordinate the activities of the NCCS Committee of Principals Subcommittee on Nuclear Weapon Accident Incident Response and the Policy Working Group.
- Implement new DoD directive for Chemical Biological, Radiological, and Nuclear Survivability Policy and stand up the Senior Oversight Group (SOG).
- Monitor and advise OSD on the status of DoD capability for Nuclear Weapons Effects Simulators and Simulation.
- Continue to support the DoD executive agency (ASD(Homeland Defense)) for interagency actions concerning Combating Weapons of Mass Destruction at home and abroad.
- Continue Nuclear Defense Portfolio oversight.

FY 2010 Plans:

- Continue Nuclear Defense Portfolio oversight.
- Analyze nuclear forensics and other nuclear defense activities to ensure they are in synch with broader interagency tasks.
- Continue planning and coordinating the activities of the National Nuclear Forensics Steering Committee and Working Group.
- Continue to develop OSD-wide approach to overseeing Global Nuclear Defense missions within DoD.
- Continue to oversee the integration of all DoD nuclear defense capabilities in support of the Global Nuclear Defense Initiative.
- Continue to oversee the acquisition strategy for DoD Combating Weapons of Mass Destruction requirements.
- Continue to provide direction for DoD and OSD preparations to train for response actions, under DoDD 3150.8, "DoD Response to Radiological Accidents.
- Continue to maintain the office Go-Kit and classified website to enhance coordination in the event of a nuclear weapon accident.
- Continue to direct and coordinate the activities of the NCCS Committee of Principals Subcommittee on Nuclear Weapon Accident Response.
- Continue to implement CBRN Survivability Policy and support the SOG.
- Continue to monitor and advise OSD on the status of DoD capability for Nuclear Weapons Effects Simulators and Simulation.
- Continue to support the DoD executive agency (ASD(Homeland Defense)) for interagency actions concerning Combating Weapons of Mass Destruction at home and abroad.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605161D8Z - Nuclear Matters				PROJECT P161
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Nuclear Matters	0.300	0.301	1.020	

FY 2008 Accomplishments:

- Submitted annual reports to the President and the Congress.
- Initiated the updating and documentation of DoD nuclear weapon policy, responsibilities, and procedures in DoD publications.
- Continued to manage the protection of classified nuclear weapons information including access to and dissemination of Restricted Data, as mandated by Enclosure 5, DoDD 5210.2, "Access to and Dissemination of Restricted Data".
- Continued as DoD Sigma 15 Approval Authority (Interface with DOE/NNSA).
- Addressed Freedom of Information Act and Mandatory Declassification Requests.

FY 2009 Plans:

- Submit annual reports to the President and the Congress.
- Continue to oversee DoD/DOE relationship regarding the survivability and surety of the national nuclear stockpile.
- Continue as DoD Sigma 15 Approval Authority (Interface with DOE/NNSA).
- Continue to address Freedom of Information Act and Mandatory Declassification Requests.

FY 2010 Plans:

- Submit annual reports to the President and the Congress.
- Continue to oversee DoD/DOE relationship regarding the survivability and surety of the national nuclear stockpile.
- Continue as DoD Sigma 15 Approval Authority (Interface with DOE/NNSA).
- Continue to address Freedom of Information Act and Mandatory Declassification Requests.
- Establish a means to provide nuclear technical expertise to senior advisory groups.
- Establish a program to promote nuclear enterprise awareness and outreach.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #6			R-1 Item Nomenclature: Support to Networks and Information Integration/0605170D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	10.725	14.642	14.916	
Command Information Superiority Architecture	5.363	5.581	5.686	
Defense Architecture Repository	1.231	1.283	1.307	
Integrated Planning and Management	1.955	2.065	2.103	
Support to NII Mission Requirements	2.176	5.713	5.820	

A. Mission Description and Budget Item Justification:

This program element supports studies in the areas of networks, information integration, defense-wide command and control (C2), and communications. This program is funded under Budget Activity 6, RDT&E Management Support because it includes studies and analysis in support of RDT&E efforts.

Support to NII Mission Requirements accomplishments and plans:

Program Accomplishments and Plans:

FY 2008 Accomplishments (\$2.176 million)

- Researched new approaches to military and civil-military command and control suitable for 21st Century coalition operations including stability and reconstruction.
- Continued to fund the Edge Institute at the Navy Post Graduate School (NPS) and selected research efforts at other universities.
- Continued to support the Network Science Center at the USMA at West Point to engage faculty and cadets in network-centric C2 related projects.
- Continued, in collaboration with allies and NATO partners, the development and testing of a maturity model for network-enabled coalition command and control and the development of related metrics.
- Supported DoD organizations in the design and conduct of C2-related experimentation.
- Continued to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
- Conducted 12th International Command and Control Research and Technology Symposium.
- Conducted workshops to explore command and control related issues.
- Continued to develop manuscripts for widely read and respected C2 publications and outreach program.

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- Maintained and expanded C2 research community website
- Continued campaign of experimentation related to information sharing, collaboration, and trust.

FY 2009 Plans (\$5.713 million)

- \$3.500 million transferred from the Air Force for Global Positioning System (GPS) User Equipment Synchronization to conduct OASD/NII oversight of Global Positioning System (GPS) management and planning activities required for the National Space-Based Positioning, Navigation and Timing Executive Committee. During FY 2009 this \$3.5 million will fund the following (in italics):
 - Full time on-site staff support to ASD(NII)/DoD CIO Space Programs and Policy (3 STE)
 - Full time PNT liaison officer for OASD(NII)/DoD CIO at US STRATCOM (1 STE)
 - Update and coordinate the GPS Security Policy DODI 4650.0x
 - Author and coordinate the Navigation Warfare Concept of Operations DODI 4650.0x with US STRATCOM
 - Author and coordinate Next Generation Air Transport System (NextGen) DODI 5030.x in concert with Air Force and Federal Aviation Administration (FAA)
 - Author and coordinate Security Control of Navigation Aids DODI 5030.x in concert with NORAD, NORTHCOM, Department of Homeland Security (DHS), and FAA
 - Author and coordinate DoD/Department of Transportation (DOT)/DHS MOA to define responsibilities for biennially updating the Federal Radio-Navigation Plan (FRP)
 - Draft Red Key Sundown Policy in support of GPS Security Policy DODI 4650.0x
 - Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for ASD(NII)/DoD CIO in his role as co-chair of the Executive Steering Group
 - Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT)
 - Participate in transition planning for the National PNT Architecture with DOT and the National Space Security Office (NSSO) and prepare a PNT Architecture Transition Plan for use by the DoD and the civil agencies
 - Perform biennial update of the DoD PNT Science and Technology Roadmap using the PNT Architecture recommendations
 - Conduct study to identify and catalog DoD and allied GPS users in support of developing GPS Security Policy DODI and Navigation Warfare DODI
 - Conduct study to explore the plausibility of DoD using civil and foreign PNT services in support of developing a Navigation Warfare Concept of Operations (CONOP) with US STRATCOM and the Joint Navigation Warfare Center (JNWC)

\$2.213 million - Command and Control Research:

- Enhance the tools and instrumented environments that support C2-related research
- Continue to pursue research on new approaches to military and civil-military command and control suitable for 21st Century coalition

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operations including stability and reconstruction.

- Continue to fund the Edge Institute at the Navy Post Graduate School (NPS) and selected research efforts at other universities and research centers.
- Continue to support the Network Science Center at the USMA at West Point to engage faculty and cadets in network-centric C2 related projects.
- Continue, in collaboration with allies and NATO partners, the development and testing of a maturity model for network-enabled coalition command and control and the development of related metrics
- Support DoD organizations in the design and conduct of C2-related experimentation
- Continue to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
- Conduct 13th International Command and Control Research and Technology Symposium.
- Conduct workshops to explore command and control related issues.
- Continue to develop manuscripts for widely read and respected C2 publications and outreach program.
- Maintain and expand C2 research community website
- Continue campaign of experimentation related to information sharing, collaboration, and trust.

FY 2010 Plans (\$5.820 million)

- \$3.500 million - Global Positioning System (GPS) User Equipment Synchronization to conduct OASD/NII oversight of Global Positioning System (GPS) management and planning activities required for the National Space-Based Positioning, Navigation and Timing Executive Committee. Funding supports:
 - Full time on-site staff support to ASD(NII)/DoD CIO Space Programs and Policy (3 STE)
 - Full time PNT liaison officer for OASD(NII)/DoD CIO at US STRATCOM (1 STE)
 - Author and coordinate International Supplement to GPS Security Policy DODI 4650.0x
 - Author and coordinate Information Assurance/COMSEC Supplement to GPS Security Policy DODI 4650.0x
 - Finalize and execute the GPS Security Policy DODI 4650.0x
 - Finalize and implement Navigation Warfare Concept of Operations DODI 4650.0x with US STRATCOM
 - Finalize and implement Next Generation Air Transport System (NextGen) DODI 5030.x in concert with Air Force and FAA
 - Finalize Security Control of Navigation Aids DODI 5030.x in concert with NORAD, NORTHCOM, DHS, and FAA
 - Develop NextGen interfaces with the GPS Wing, Joint Program Development Office (JPDO), Air Force, and Policy Board for Federal Aviation (PBFA)
 - Conduct biennial update of the Federal Radio-Navigation Plan (FRP) during CY 2010
 - Coordinate and implement Red Key Sundown Policy

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- Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for ASD(NII)/DoD CIO in his role as co-chair of the Executive Steering Group
- Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT)
- Author DoD portion, conduct interagency coordination and submit the GPS Biennial Report to Congress for signature by the ASD(NII)/DoD CIO
- Oversee and coordinate execution of U.S National PNT Architecture Transition Plan within DoD and in the interagency forum
- Conduct study to identify and catalog civil/commercial GPS uses, requirements, service benefits and augmentation dependencies to inform implementation and execution of Navwar CONOP, Security Control of Navaids, the National PNT Architecture, and NextGen

- \$2.320 million - Command and Control Research:
 - Continue to enhance the tools and instrumented environments that support C2-related research
 - Continue to pursue research on new approaches to military and civil-military command and control suitable for 21st Century coalition operations including stability and reconstruction.
 - Continue to fund the Edge Institute at the Navy Post Graduate School (NPS) and selected research efforts at other universities and research centers.
 - Continue to support the Network Science Center at the USMA at West Point to engage faculty and cadets in network-centric C2 related projects.
 - Continue, in collaboration with allies and NATO partners, the development and testing of a maturity model for network-enabled coalition command and control and the development of related metrics
 - Support DoD organizations in the design and conduct of C2-related experimentation
 - Continue to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
 - Conduct 14th International Command and Control Research and Technology Symposium.
 - Conduct workshops to explore command and control related issues.
 - Continue to develop manuscripts for widely read and respected C2 publications and outreach program.
 - Maintain and expand C2 research community website
 - Continue campaign of experimentation related to information sharing, collaboration, and trust.

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Presidents Budget	11.055	14.723	15.024
Current Presidents Budget	10.725	14.642	14.916
Total Adjustments	-0.330	-0.081	-0.108

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Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustment	-0.330	-0.081	-0.108
PBD Adjustment			
Transfer			

Program Change Summary:

FY 2008: Program adjustment.
FY 2009: Program adjustment.
FY 2010: Program adjustment.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

- Community participation in command and control research program (CCRP) events.
- Number of requests for / downloads of CCRP publications.
- Number of international countries engaged in net centric discussions and collaborative research and analysis efforts.
- Number of researchers using CCRP-developed models, metrics, and experimental environments and tools.
- Successfully sponsored symposia/workshops to discuss command and control research initiatives.

CISA Performance is based on the number of initiatives that transition to the net-centric environment to support operations.

Measures include:

- Timely development and issuance of policy, guidance, processes, and technologies to build, populate, govern, operate, and protect the Network.
- Policies developed and issued for GIG design, architecture content management, implementation, and operations.

DARS Performance Metrics:

- Timely development and issuance of policy, guidance, processes, and technologies to build, populate, govern, operate, and protect the

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Network.

- Policies developed and issued for GIG design, architecture content management, implementation, and operations.

C2 Integrated Planning & Management Performance Metrics:

- Successfully develop, coordinate, and publish DOD C2 policies and operational concepts.
- Establishment of an information integration and decision portfolio of C2 services and applications to demonstrate selected capabilities.
- Development of Dynamic Operational Communities of Interest services based on the capabilities provided by the NCES Program.

Establishment of an ontological framework and XML data model to permit the meta-tagging of information integration decision portfolio data at the strategic and national C2 level in a manner consistent with other DoD data strategies and modeling efforts.

Exhibit R-2a, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #6			Project Name and Number Command Information Superiority Architecture (CISA) – P170	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Command Information Superiority Architectures	5.363	5.581	5.686	
<p>A. Mission Description and Budget Item Justification: The CISA program provides a structured planning process based on Information Technology (IT) best business practices to define current and objective capabilities for IT support to assigned missions in a net-centric environment. CISA is the DoD program that provides architectures in compliance with the Clinger-Cohen Act, OMB Circular A-130, E-Gov Act and other related higher level guidance from the Federal CIO Council and the Federal Enterprise Architecture Program Management Office, which mandates the development and use of architectures as validation for IT investment decisions. The CISA program develops and maintains the Global Information Grid Enterprise Architecture, the Department’s enterprise architecture as directed by Title 40. It supports the development of the framework, processes, and standards for developing and maintaining a DoD federated enterprise architecture. CISA is the leading developer for the net-centric reference model, the standard evaluation guide used by DoD Program Managers at all echelons of command for transitioning DoD programs to the net-centric environment. The CISA program supports the development of architectural standard tools and systems, including the DoD Architectural Framework manual and artifacts as well as facilitating the effective use of architectures in IT portfolio management. Develop and maintain key GIG policy and guidance documents that drive the acquisition, transition to and operation of a net-centric GIG; the implementation of policy/guidance through a set of critical supporting activities such as IT standards management, and DoD transition to Internet Protocol version 6 (IPv6); Real Time Service and IP convergence and enforcing policy through key enterprise governance mechanisms. Review and assess Command and Control, Computers, Communications and Intelligence Support Plans / Information Support Plans for the DoD CIO, identifying interoperability, supportability, net-centric and integration issues.</p>				
B. Accomplishments/Planned Program				
	FY 2008	FY 2009	FY 2010	
Accomplishment/ Effort/Subtotal Cost	5.363	5.581	5.686	
RDT&E Articles Quantity *(as applicable)				
<p>FY 2008 Accomplishments (\$5.363 million) - Reviewed and revised GIG related policies to support net-centric operations. Provided additional guidance, where needed. Deconflicted and managed GIG policies and guidance and provided tools so they can be easily accessible and understandable by users.</p>				

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- Continued to support the evolution of GIG NetOps and configuration management concepts to improve IA, information sharing and interoperability. Incorporated, as appropriate, portfolio management into these mechanisms.
- Continued to refine overall governance paradigm. Monitored and assessed Component compliance with GIG policy and guidance. Evaluated and helped resolve issues
- Continued develop the Federated Enterprise Architecture Framework.
- Continued the update of Defense Architecture Framework (DoDAF).
- Continued development of GIG NCOW Reference Models.
- Continued updates to the Core Architecture Data Model (CADM).
- Continued development and provided an integrated set of COCOM Net-Centric assessment capabilities for implementing transition plans.
- Continued development of the International Defence Enterprise Architecture Specification (IDEAS) Data Model.
- Continued the support of the ISP tools analysis development.
- Developed the DoD Information Enterprise Architecture (DIEA).

FY 2009 Plans (\$5.581 million)

Continue to review and revise GIG related policies to support net-centric operations.

- Continue to support the evolution of GIG NetOps and configuration management concepts to improve IA, information sharing and interoperability. Incorporate, as appropriate, portfolio management into these mechanisms.
- Continue to refine overall governance paradigm. Monitor and assess Component compliance with GIG policy and guidance.
- Continue progression of development of Net Centric DoD Architecture Framework
- Continue support of GIG NCOW Reference Models
- Continue support to the CADM
- Evolve the DIEA in support of net-centric objectives, interoperable infrastructure, and investment management.
- Develop and publish Defense Information Enterprise Transition Plan (DIETP) the enterprise-wide progress toward achieving net-centric information sharing

FY 2010 Plans (\$5.686 million)

- Continue to provide strategy, policy, oversight, and guidance for NetOps across the DoD Enterprise.

- Develop and issue additional NetOps policies as required.
- Oversee the execution of NetOps Implementation Plan, Strategy and policy.
- Work with CC/S/As to ensure that DIE Architecture principles, rules, constraints and best practices are applied.
- Continue to work with CC/S/As to ensure capabilities for operating and defending the GIG are acquired, managed, integrated and synchronized.
 - Continue to provide guidance to NetOps and improve GIG situational awareness and GIG command and control.
 - Continue to work with CC/S/As to improve NetOps information sharing.

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- Continue to partnership with CPM office to implement NetOps capabilities based on the Net Management Functional Solution Analysis (NM FSA)
- Support the Development of formal NetOps training and certification for NetOps personnel across DoD.
- Develop Implementation plans to support new revised GIG Related Policies. Lead DoD-wide working groups to address implementation initiatives status, issues and best practices.
- Continue to refine governance structures to address new policies and oversight requirements.
- Continue to monitor and assess component compliance regarding new policies and guidance.
- Conduct reviews to monitor Component implementation plans for the Defense Information Enterprise Transition Plan (DIETP) outline goals and initiatives.
- Continue refinement of the Net Centric DoD Architecture Framework to address new demands technologies and IA requirements.

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
O&M, DW (PE0902198D8Z)	4.372	4.806	4.551

D. Acquisition Strategy: N/A

Exhibit R-2a, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #6			Project Name and Number Defense Architecture Repository Systems (DARS) – P170	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
DARS	1.231	1.283	1.307	
<p>A. Mission Description and Budget Item Justification: DARS is the Department’s enterprise registry, catalog and navigation map for enterprise architecture. It serves as the Department’s primary catalog of architecture data holdings and provides users the ability to register holdings metadata and search, retrieve, and use DoD architecture data in federated architecture data repositories across DoD. DARS provides a key component of the Department’s net-centric data management capability by federating enterprise architecture data across the Department. It enables alignment of program architecture components with the Federal Enterprise Architecture Business Reference Model - consistent with OMB directives for exhibit 300s - via the DoD Business Reference Model. DARS implements a federated search capability and metadata catalog that will interoperate with the Department’s Net-Centric Enterprise Discovery Service and enterprise content metadata catalog. Architecture metadata is searchable using the DARS federated discovery web service. The discovery search results provide links to architecture data that is retrievable based on user roles and access permissions. Implementations are accessible on both the NIPRNET (unclassified) and SIPRNET (Collateral Classified). Key features of the DARS program focus on: (1) Making architecture data visible, accessible, trusted, understandable, and interoperable (2) enabling reuse of validated architecture data to build “composite” integrated architectures; (3) enabling architecture analysis; and, (4) integrating architecture data into the DoD mainstream decision-making processes. The Department of the Air Force, Army, and Navy CIO’s are collaborating in the development of DARS federation web services via the Federated Joint Architecture Working Group under the auspices of the DoD Enterprise Architecture Summit to ensure DoD-wide access to and usability of all components of the composite DoD enterprise architecture model.</p>				
B. Accomplishments/Planned Program				
	FY 2008	FY 2009	FY 2010	
Accomplishment/ Effort/Subtotal Cost	1.231	1.283	1.307	
RDT&E Articles Quantity *(as applicable)				
<p>FY 2008 Accomplishments (\$1.231 million)</p> <p>- Continued to implement capabilities required to meet changes to the DoD Architecture Framework (DoDAF) that will include capabilities to expand the “dynamic” assembly of architectures based on mission or process requirements or “tailorable packages” based on architecture data for assistance in decision making (DARS 7.0).</p>				

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- Continued integration of DARS data services into “Core Enterprise Services”.
- Fully integrated DARS data harvesting capabilities into a Federated Data-Centric environment.

FY 2009 Plans (\$1.283 million)

- Continue Operation and Maintenance of DARS
- Continue to implement capabilities required to meet changes to the DoD Architecture Framework (DoDAF)
- Continue integration of DARS data services into “Core Enterprise Services”
- Continue integration of DARS data harvesting capabilities into a Federated Data-Centric environment

FY 2010 Plans (\$1.307 million)

- Provide for and continue enterprise-level operational support for the DoD Architecture Registry System.
- Continue the development of the Core Architecture Data Model (CADM) providing common vocabulary for architecture information.
- Enforce transition to a complete services web-based application by expanding the current net-centric services based security and compliant met-data discovery with a collaborate environment that ensures end-to-end information assurance of validated architecture data.
- Work with DoD Component to refine requirements and processes to effectively expose existing architectures for reuse.
- Continue to expand and refine DARS to accommodate registration /federation requirements as defined by the Federated Joint Architectures Working Group.
- Continue integration of DARS data services into the “Core Enterprise Services”.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

Exhibit R-2a, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #6			Project Name and Number Integrated Planning and Management – P170	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Integrated Planning and Management	1.955	2.065	2.103	
A. Mission Description and Budget Item Justification:				
<p>The Integrated Planning and Management Project encompasses the National Leadership Command Capability (NLCC) Management Office's (NMO) responsibilities for establishing overall DoD policy with respect to the capability development, interoperability, standards, and architecture for Defense and National Leadership. The NMO serves as the single point of contact within the Department for policy, long-range plans, programs, integrated mission advocacy, and management of decision-maker capabilities. The objective of the NMO is to ensure capabilities are in place to provide complete and timely situational awareness and decision tools for senior decision-makers. Additionally, the NMO assists the ASD NII/DoD CIO as the Executive Agent and primary OSD advocate for the White House Military Office with oversight of a wide range of DoD command and control (C2) and communications assets and oversees the efforts of the Services and Agencies in the design, integration and deployment of critical and sensitive C2 capabilities. Specific areas of focus include nuclear and non-nuclear strategic strike, integrated missile defense, Continuity of Government (COG), and Senior Leadership Communications.</p>				
B. Accomplishments/Planned Program				
	FY 2008	FY 2009	FY 2010	
Accomplishment/ Effort/Subtotal Cost	1.955	2.065	2.103	
RDT&E Articles Quantity *(as applicable)				
<p>FY 2008 Accomplishments (\$1.955 million) Determined, in coordination with USD(P)/HD, the ability of the Gold network to support DoD's Continuity of Operations (COOP), Continuity of Government (COG), and Enduring Constitutional Government (ECG) missions directed by National Security Presidential Directive(HSPD) 51/Homeland Security Presidential Directive (HSPD) 20. Conducted a robust evaluation of the network in a realistically viable operational environment. - Investigated the development of emerging technologies that can be integrated to form advanced command capability concepts.</p> <p>FY 2009 Planned (\$2.065 million) Initiate the automation and integration of data into a DISA-developed management tool that facilitates informed decision making for NLCC capability management</p>				

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- Initiate the development of a Continuity of Government Communications architecture to enable compliance with Sec 18 of NSPD 51/HSPD 20
- Initiate the development of an integrated command and communications architecture, informed with on-going technology advancements for senior leadership support
- Work with Defense Laboratories and industry partners to fast-track promising technologies and to posture requirements for the long-term
- Initiate the identification and measurement of metrics for systems and technologies considered of primary importance to defense and national leadership capabilities
- Draft a comprehensive plan for developing capabilities to support information and mission assurance capabilities
- Conduct an initial analysis to frame experimentation concepts, design experiments and prototype tests for candidate or representative command systems and technologies
- Investigate shortfalls or deficiencies in programs that support White House and DoD senior leaders

FY 2010 Planned (\$2.103 million)

Manage to minimize or eliminate shortfalls or deficiencies in programs that support White House and DoD senior leaders

- Continue the automation and integration of data into a capability management tool that facilitates informed decision making for NLCC capability management
- Continue efforts with Defense Laboratories and industry partners to fast-track promising technologies and to posture requirements for the long-term
- Finalize a comprehensive plan for developing capabilities to support information and mission assurance capabilities
- Investigate performance and capabilities of candidate or representative command systems and technologies through focused experimentation
- Conduct experimentation and identify appropriate technologies that will advance the capabilities needed to support COOP/COG/ECG requirements
- Develop prototype applications and services to fully populate the national leader capabilities experiment
- Continue the development and refinement of capability-based metrics; conduct experimentation and analysis to validate

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E Defense-Wide, BA 6				R-1 Item Nomenclature: General Support to USD(Intelligence) PE 0605200D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	4.534	4.355	5.888					
Resource Database Support	.297	0	0					
Cross-cutting Studies	0	.310	0					
Developmental Activities	1.378	1.013	2.822					
Operations Integration	2.859	3.032	3.066					
A. Mission Description and Budget Item Justification:								
<p>Resource Database Support is technical and resource management activities that serve the OUSD(I) organization. Cross-cutting Studies are affecting wide-area persistent surveillance; material and non-material solutions for countering China's emerging counterspace capabilities; and an approach to netcentricity. Developmental Activities provides innovative approaches to address intelligence, intelligence related capabilities, and intelligence sharing. Operations Integration focuses on technologies and their applications on activities of the OUSD(I).</p>								
B. Program Change Summary:								
		<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>			
Previous President's Budget		4.534	4.379	6.246	6.559			
Current President's Budget		4.534	4.355	5.888	6.260			
Total Adjustments			-.024	-.358	-.299			
Congressional reductions			-.024					
Congressional increases								
Department adjustments				-.358	-.299			

Change Summary Explanation:

FY 2008: N/A

FY 2009: Congressional reduction

FY 2010: Department decrease

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

Resource Database Support: Accuracy and completeness of financial data captured for all Intelligence elements within the DoD in support of SecDef, OMB and Congress.

Developmental Activities: Classified.

Operations Integration: Classified.

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Exhibit R-2a, RDT&E Project Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E,DW BA 6				Project Name and Number: Resource Database Support			
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Resource Database Support	.297	0	0				
RDT&E Articles Quantity	N/A	N/A	N/A				
A. Mission Description and Budget Item Justification:							
Provides on and offsite operational, technical and process support, to include development of major improvements to the existing mechanisms/applications used by OUSD(I) to meet PPBE requirements and the timely and accurate production of MIP Congressional Justification Book (CJB). Supports transition from current applications and databases to an integrated automated resource management system.							
B. Accomplishments/Planned Program							
	FY 2008	FY 2009	FY 2010				
Accomplishment/ Effort/Subtotal Cost	.297	0	0				
RDT&E Articles Quantity	N/A	N/A	N/A				

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E,DW BA 6				Project Name and Number: Cross-cutting Studies			
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Cross-cutting Studies	0	.310	0				
RDT&E Articles Quantity	N/A	N/A	N/A				
A. Mission Description and Budget Item Justification:							
Cross-cutting Studies are affecting wide-area persistent surveillance; material and non-material solutions for countering China's emerging counterspace capabilities; and an approach to netcentricity.							
B. Accomplishments/Planned Program							
	FY 2008	FY 2009	FY 2010				
Accomplishment/ Effort/Subtotal Cost	0	.310	0				
RDT&E Articles Quantity	N/A	N/A	N/A				
FY 2008 Accomplishments: N/A							
FY 2009 Plans: Three studies planned for FY09:							
(1) An assessment on future improvements to wide-area persistent surveillance, including an assessment of sensor technology capabilities and limitations; an analysis of the most suitable sensor platforms; an evaluation of the best system architecture for collecting, sharing, and analyzing sensor data; and analysis of the optimum use of wide-area surveillance for defeating IED and other asymmetric threat networks. This is a cross-cutting study co-funded with other OSD entities.							
(2) A capability-based assessment of material and non-material solutions for countering China's emerging counterspace capabilities. Results will provide foundational data for the follow-on functional solution analysis. This is a cross-cutting study co-funded with other OSD entities.							

(3) Determination of an optimal approach to sharing data and services: an approach to netcentricity. Multiple organizations have put forward concepts and funding demonstrations, analyses, joint capabilities technology demonstrations and actual programs. The study will bring together the disparate efforts to see what's common and will also look at appropriate governance models for these types of efforts across the department. This is a cross-cutting study co-funded with other OSD entities.

FY 2010 Plans: N/A

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: TBD

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification							Date: May 2009	
Appropriation/Budget Activity RDT&E,DW BA 6				Project Name and Number: Developmental Activities				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Developmental Activities	1.378	1.013	2.822	3.212	3.436	3.682	3.743	3.803
RDT&E Articles Quantity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A. Mission Description and Budget Item Justification: This program focuses on technologies and their applications to activities of the OUSD(I). It includes evaluation of concepts, technology development and feasibility studies related to intelligence processes, shortfalls, and requirements that affect intelligence policy, planning and operational guidance.								
B. Accomplishments/Planned Program								
	FY 2008	FY 2009	FY 2010	FY 2011				
Accomplishment/ Effort/Subtotal Cost	1.378	1.013	2.822	3.212				
ORDT&E Articles Quantity	N/A	N/A	N/A	N/A				
FY 2008 Accomplishments: Mission Support \$1.378								
FY 2009 Plans: Mission Support \$1.013								
FY 2010 Plans: Mission Support \$2.822								
Future Year Plans: Mission Support \$3.212								
C. Other Program Funding Summary: N/A								
D. Acquisition Strategy: N/A								
E. Major Performers: Classified								

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E,DW BA 6				Project Name and Number: Operations Integration				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010					
Operations Integration	2.859	3.032	3.066					
RDT&E Articles Quantity	N/A	N/A	N/A					
A. Mission Description and Budget Item Justification:								
This program focuses on developmental technologies, methodologies, and capabilities. These activities will provide unique and innovative approaches to address intelligence, intelligence related capabilities, and intelligence sharing initiatives.								
B. Accomplishments/Planned Program								
	FY 2008	FY 2009	FY 2010					
Accomplishment/ Effort/Subtotal Cost	2.859	3.032	3.066					
RDT&E Articles Quantity	N/A	N/A	N/A					
FY 2008 Accomplishments: Mission Support \$2.859								
FY 2009 Plans: Mission Support \$3.032								
FY 2010 Plans: Mission Support \$3.066								
Future Year Plans: Mission Support \$3.048								
C. Other Program Funding Summary: N/A								
E. Acquisition Strategy: N/A								
E. Major Performers: Classified								

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 6

0605502D8Z - Small Business Innovative Research (SBIR)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P502 Small Business Innovative Research (SBIR)	50.109	52.812					

A. Mission Description and Budget Item Justification: Not applicable for this item.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605502D8Z - Small Business Innovative Research (SBIR)					PROJECT P502	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P502 Small Business Innovative Research (SBIR)	50.109							

A. Mission Description and Budget Item Justification: Not applicable for this item.

B. Accomplishments/Planned Program: Not Applicable.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605790D8Z - Small Business Innovative Research (SBIR)Challenge Admin						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P518 SBIR Administration	2.981	5.733	2.163					

A. Mission Description and Budget Item Justification:

(U) The Small Business Innovation Research (SBIR) Program and the Small Business Technology Transfer (STTR) Program fund over one billion dollars annually in mission oriented research and development projects at small technology companies. The purpose of the program is to stimulate the development of new technologies to improve U.S. military and economic capabilities. The SBIR/STTR Program is mandated by public laws (PL) 97-219, PL 99-443, PL 102-564, PL 106-554, PL 107-50, and PL 111-10 and is codified in 15 USC 638. The Department of Defense (DoD) SBIR/STTR Program competitively funds scientific and technical innovation to specifically address the needs of participating DoD components.

(U) DoD components participating in the SBIR Program include the: Army , Navy, Air Force, Defense Advanced Research Projects Agency (DARPA), Missile Defense Agency (MDA), Defense Threat Reduction Agency (DTRA), U.S. Special Operations Command (SOCOM), Joint Science & Technology Office for Chemical & Biological Defense, National Geospatial-Intelligence Agency (NGA), the Defense Logistics Agency (DLA), the Defense MicroElectronics Activity (DMEA) and the Office of Secretary of Defense (OSD) through the Director, Defense Research & Engineering (DDR&E). DoD components participating in the STTR Program include the: Army, Navy, Air Force, DARPA, MDA, and OSD.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE			
RDTE, Defense Wide BA# 6	0605790D8Z - Small Business Innovative Research (SBIR)Challenge Admin			
<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	3.135	2.165	2.193	
Current BES/President's Budget (FY 2010)	2.981	5.733	2.163	
Total Adjustments	-0.154	3.568	-0.030	
Congressional Program Reductions				
Congressional Rescissions		-0.032		
Congressional Increases		3.600		
Reprogrammings	-0.061			
SBIR/STTR Transfer	-0.087			
Other	-0.006		-0.030	

Congressional increases include three projects (under project number P518) to fund small business development of innovative technologies for military requirements. Projects include:

1) Directed Energy Systems for UAV Payloads - \$800,000

Development of non-lethal directed energy weapons (DEW) technology based on radio frequency directed energy. This technology specifically targets the disruption or destruction of electronic systems such as communications, computers, sensors, and remote triggering devices which may be employed in improvised explosive devices. FY09 funds will support the incorporation of new technologies and techniques into the existing design to enhance DEW capabilities.

2) Ferroelectric Component Technology - \$1,200,000

Development of a 95/5 PZT shock discharged element for the Intense electroMagnetic Pulse weapon (IMP), an RF grenade designed to disrupt or destroy electric circuits and components. FY09 funds will support the fabrication of ferroelectric generators using a pilot production process.

3) Random Obfuscating Compiler Anti-Tamper Software - \$1,600,000

Project supports the development of a product for secure distribution and execution of critical DoD software applications and data in a hostile environment. FY09 funding will be used to develop state-of-the-art software protection technology to support real-time processing and operations, and will be integrated with additional hardware anti-tamper solutions.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

Program Element supports the Department's administration of the Small Business Innovation Research (SBIR) Program (under the Small Business Innovation Research Reauthorization Act of 2000, Public Law 106-554, amended section 9 of the Small Business Act) and the Small Business Technology Transfer (STTR) Program (under the Small Business Technology Transfer Reauthorization Act of 2001, Public Law 107-050, amended section 9 of the Small Business Act). Both laws, representing an approximate annual value of over one billion dollars, are codified under 15 U.S.C. 638. Performance is in support of the administration of the program and compliance with statutory requirements including: unilaterally developed projects; release of solicitations; unilateral evaluation of proposals; collection and maintenance of information from awardees; payment of awardees; administration of funding agreements; development and execution of a commercialization plan; reporting to the Small Business Administration; and maintenance of data and intellectual property rights.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605790D8Z - Small Business Innovative Research (SBIR)Challenge Admin				PROJECT P518			
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P518 SBIR Administration	2.981	5.733	2.163					

A. Mission Description and Budget Item Justification:

(U) The SBIR/STTR Program is executed in three phases. The purpose of Phase I is to determine, insofar as possible, the scientific technical and commercial merit, and feasibility of ideas submitted under the SBIR/STTR Program. Phase II awards are made to firms that have been awarded a Phase I contract on the basis of the results of their Phase I effort and the scientific, technical, and commercial merit of the Phase II proposal. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. Phase III SBIR/STTR efforts derive from, extend or conclude Phase I or Phase II efforts, and are not funded with SBIR/STTR funds. Under Phase III, companies participating in the SBIR/STTR Program are expected to obtain funding from the private sector and/or non-SBIR/STTR government sources to develop the prototype into a viable product or non-R&D service for sale in military and/or private sector markets.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Small Business Innovation Research Administration	2.981	5.733	2.163

(U) Since PL 102-564 prohibits the use of any of the SBIR budget to fund administrative costs of the program, program element (PE) 0605790D8Z is the only source of funds for the coordination, administration and execution of the Department's SBIR/STTR Program. In addition to funding costs for program administration, coordination and execution, PE 0605790D8Z funds essential elements of the SBIR/STTR Program that are required by law including: (a) the development and maintenance of information systems and software required for the measurement, evaluation, and effective management of the Department's SBIR/STTR R&D Program; (b) outreach to small technology companies, potential investors in such companies, SDBs WOSBs HBCU/MIs and others, to encourage and facilitate their participation in the SBIR/STTR Programs (e.g. conferences, trade shows, etc.); (c) preparation of the SBIR/STTR R&D solicitations and related publications; (d) support efforts such as administration of the various SBIR/STTR process action teams; (e) development and promulgation of guidance and reference materials to DoD contracting officers, technical monitors, and other personnel involved in administering the SBIR/STTR Programs; and (f) responding to requests for information relative to DoDs SBIR/STTR Program that receives about 16,000 proposals yearly and issues over 3,000 contracts.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY		PE NUMBER AND TITLE						
RDTE, Defense Wide BA# 6		0605798D8Z - Defense Technology Analysis						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
Total Program Element (PE) Cost	11.375	10.979	11.005					
P797 Defense Technology Analysis	5.335	5.669	5.674					
P798 DDR&E Support Teams	6.040	5.310	5.331					

A. Mission Description and Budget Item Justification:

The Director of Defense Research and Engineering (DDR&E) is the principal staff advisor to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) and the Secretary and Deputy Secretary of Defense for research and engineering matters. In this capacity, the DDR&E has the responsibility to conduct analyses and studies; develop policies; provide technical leadership, oversight and advice; make recommendations; and issue guidance for the DoD Research and Engineering plans and programs. Additionally, the DDR&E provides technical support to the USD(AT&L) on R&E aspects of programs subject to review by the Defense Acquisition Board, to include assessments of technology readiness consistent with DoD acquisition policy.

This program element provides mission support to the Office of the DDR&E (ODDR&E). It covers a wide range of studies and analyses in support of the R&E program and impacts the Department's decision to fund RDT&E efforts. The DoD's key expertise for reviewing and guiding research and engineering programs resides in the ODDR&E. The ODDR&E staff augments their responsibilities through their connections to technology experts in various fields throughout academia, industry, and government. This project supports the directed responsibilities by building DDR&E Support Teams (DSTs) of technology experts to conduct program technical assessments. The DSTs will analyze the key engineering problem areas and offer adjustments in the development and test plan; alternate technical approaches; or new technologies that could enable successful development. The DSTs will constitute expert non-advocate reviews and gather advice from the Nation's leading technical experts. Future capabilities will depend on today's R&E investment. Consequently, the mission of the DoD R&E program is to create, demonstrate, prototype, and apply technology that enables affordable and decisive military superiority to defeat any adversary on any battlefield. Pursuing the R&E mission requires attention to: identification and development of new technological opportunities; insertion of new technologies into warfighting systems and operations; and management and evaluation of the effectiveness of technology programs. A successful R&E program is connected to the acquisition Program Managers/Program Executive Officers to ensure the best possible technology is being integrated into acquisition systems.

This program element provides engineering, scientific and analytical support to the Office of the Deputy Under Secretary of Defense (Science and Technology) (ODUSD(S&T)) in its responsibility for direction, overall quality, and content of the Science and Technology (S&T) program and ensures that the technology being developed is affordable and minimizes system development risk. The primary purpose of this program element is to facilitate the development of the S&T program and conduct assessments and analyses of the S&T program to ensure maximum utilization of Research and Development funds to accomplish the overall objectives of the S&T program. Funds are required for technical, analytical and management support; equipment and supplies; travel; and publications.

Technology Integration activities advance international science and technology (S&T) cooperation of specific projects of bilateral or multilateral interest. It provides the management support for U.S. participation in NATO's Research and Technology Organization (RTO) and The Technical Cooperative Program (TTCP). Technology Integration oversees, coordinates and reviews RTO and TTCP activities in which the U.S. has an interest including ongoing and proposed collaborative programs, technical symposia and conferences, and standard operating procedures. This effort will leverage Tri-Service S&T dollars through new and ongoing international partnerships. Technology Integration also provides selective funding support for administration, travel, conferences, and technical evaluations related to RTO activities carried out by the Services and other organizations.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 6

0605798D8Z - Defense Technology Analysis

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	13.608	11.040	11.215	
Current BES/President's Budget (FY 2010)	11.375	10.979	11.005	
Total Adjustments	-2.233	-0.061	-0.210	
Congressional Program Reductions				
Congressional Rescissions		-0.061		
Congressional Increases				
Reprogrammings	-1.824			
SBIR/STTR Transfer	-0.381			
Other	-0.028		-0.210	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

(U) Several indicators allow the Department to measure the success of the Defense Technology Analysis program element:

- The number of technological introspections as evidenced by completed Technology Readiness Assessments and the DDR&E's influence on acquisition decisions serve as valuable indicators of the program's effectiveness.
- The establishment and outputs of Defense Support Teams and Joint Analysis Teams are additional indicators of program metrics.
- Feedback into the oversight mechanisms of the S&T program to guide investment decisions serve as additional metrics.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605798D8Z - Defense Technology Analysis					PROJECT P797	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P797 Defense Technology Analysis	5.335	5.669	5.674					

A. Mission Description and Budget Item Justification:

This project provides engineering, scientific and analytical support to the Office of the Deputy Under Secretary of Defense (Science and Technology) (ODUSD(S&T)) in its responsibility for direction, overall quality, and content of the Science and Technology (S&T) program and ensures that the technology being developed is affordable and minimizes system development risk. The primary purpose of this program element is to facilitate the development of the S&T program and to conduct assessments and analyses of the S&T program to ensure maximum utilization of Research and Development funds to accomplish the overall objectives of the S&T program. Funds are required for technical, analytical, and management support; travel; and publications.

Technology Integration activities advance international science and technology (S&T) cooperation of specific projects of bilateral or multilateral interest. It provides the management support for U.S. participation in NATO's Research and Technology Organization (RTO) and The Technical Cooperative Program (TTCP). Technology Integration oversees, coordinates and reviews RTO and TTCP activities in which the U.S. has an interest including ongoing and proposed collaborative programs, technical symposia and conferences, and standard operating procedures. This effort will leverage Tri-Service S&T investments through new and ongoing international partnerships. Technology Integration also provides selective funding support for administration, travel, conferences, and technical evaluations related to RTO activities carried out by the DoD Components.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
DoD Technical Analysis	5.335	5.669	5.674	

FY2008 Accomplishments - Provided engineering, scientific, analytical, and managerial support to the ODDR&E via contract vehicles to private industry and Federally Funded Research and Development Centers. Publications supported include the Defense Research and Engineering Strategy, the Joint Warfighting Science and Technology Plan, the Defense Science and Technology Success Stories, and the Defense Basic Research Strategy. Other efforts supported congressional reports, interagency initiatives, and internal ODUSD(S&T) requirements.

The Technical Cooperation Program (TTCP) celebrated the 50th year of defense science and technology collaboration between Australia, Canada, New Zealand, the United Kingdom, and the United States on October 25, 2007 in Washington, DC. The International Technology Programs Office successfully executed the 50th Anniversary meetings and its related events. The program promotes joint research through alignment of national efforts and superior technological input to the warfighter.

The International Technology Programs Office successfully enabled information exchange between Finnish and Service communications researchers. This exchange prompted the Air Force, Army and Navy to jointly fund a Finnish research program that explores new approaches for improving telecommunications network management by leveraging Finnish excellence in cognitive network development. NII has also begun MOU discussions with Finland to formalize and expand this partnership to address other communication research areas.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 6

0605798D8Z - Defense Technology Analysis

P797

FY 2009 Plans - Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in developing strategies, plans, and policies to exploit and develop technology. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in conducting technology analyses, making recommendations, and developing guidance for science and technology plans and programs. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in reviewing proposed and approved science and technology programs and make recommendations to optimize effectiveness of the DoD investments in science and technology. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in oversight of science and technology issues and initiatives and responding to Congressional special interests. Through an international technology watch effort, identify ongoing and proposed S&T efforts that could complement efforts or fill shortfalls in meeting U.S. S&T requirements, objectives and goals. Foster international bilateral and multilateral cooperative agreements in high value science & technology areas with allies, nonaligned nations and former Soviet Block nations. Establish data exchange agreements, engineer and scientist exchange program visits, international technology assessments and new cooperative programs. Seek opportunities for international cooperation in high priority S&T. Conduct intradepartmental coordination to achieve goals as necessary.

FY 2010 Plans - Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in developing strategies, plans, and policies to exploit and develop technology. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in conducting technology analyses, making recommendations, and developing guidance for science and technology plans and programs. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in reviewing proposed and approved science and technology programs and make recommendations to optimize effectiveness of the DoD investments in science and technology. Provide engineering, scientific, analytical, and managerial support to the ODUSD(S&T) in oversight of science and technology issues and initiatives and responding to Congressional special interests. Through an international technology watch effort, identify ongoing and proposed S&T efforts that could complement efforts or fill shortfalls in meeting U.S. S&T requirements, objectives and goals. Foster international bilateral and multilateral cooperative agreements in high value science & technology areas with allies, nonaligned nations and former Soviet Block nations. Establish data exchange agreements, engineer and scientist exchange program visits, international technology assessments and new cooperative programs. Seek opportunities for international cooperation in high priority S&T. Conduct intradepartmental coordination to achieve goals as necessary.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605798D8Z - Defense Technology Analysis					PROJECT P798	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P798 DDR&E Support Teams	6.040	5.310	5.331					

A. Mission Description and Budget Item Justification:

The DoD's key expertise for reviewing and guiding research and engineering programs resides in the ODDR&E. The ODDR&E staff augments their responsibilities through their connections to technology experts in various fields throughout academia, industry, and government. This project supports the directed responsibilities by building DDR&E Support Teams (DSTs) of technology experts to conduct program technical health check-ups. The DSTs will analyze the key engineering problem areas and offer adjustments in the development and test plan; alternate technical approaches; or new technologies that could enable successful development. The DSTs will constitute expert non-advocate reviews and gather advice from the Nation's leading technical experts. Future capabilities will depend on today's R&E investment. Consequently, the mission of the DoD R&E program is to create, demonstrate, prototype, and apply technology that enables affordable and decisive military superiority to defeat any adversary on any battlefield. Pursuing the R&E mission requires attention to: identification and development of new technological opportunities; insertion of new technologies into warfighting systems and operations; and management and evaluation of the effectiveness of technology programs. A successful R&E program is connected to the acquisition Program Managers/Program Executive Officers to ensure the best possible technology is being integrated into acquisition systems.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
DDR&E Support Teams	6.040	5.310	5.331	

FY 2008 Accomplishments - Defense Support Teams (DSTs) for biometrics, full-motion video, the National Security Personnel System, and the Joint Tactical Radio System were conducted. Joint Analysis Teams (JATs) for energy security, networks, radars, network enabled command capability, sensor-weapon pairing, and unmanned aircraft were completed or initiated. Contract vehicles to obtain diverse technical expertise were put into place or were initiated.

FY 2009 Plans - Establish support teams and conduct technology analyses to support R&E program investment decisions. Continue or complete teams established in FY 2008. For selected acquisition programs and efforts, review in technical detail the respective program issues and offer technical solutions to program managers. Assessing the maturity of technology that is a candidate for transitioning to an acquisition program is important for efficient and timely fielding of improved military systems. The execution of a technology maturity assessment at all acquisition milestone decisions is now formally required by the Defense Acquisition Board. It is essential that the R&E community maintain close ties with the acquisition Program Managers and Program Executive Officers to enable the best possible technology maturity assessments.

FY 2010 Plans - Establish support teams and conduct technology analyses to support R&E program investment decisions. For selected acquisition programs and efforts, review in technical detail the respective program issues and offer technical solutions to program managers. Assessing the maturity of technology that is a candidate for transitioning to an acquisition program is important for efficient and timely fielding of improved military systems. The execution of a technology maturity assessment at all acquisition milestone decisions is now formally required by the Defense Acquisition Board. It is essential that the R&E community maintain close ties with the acquisition Program Managers and Program Executive Officers to enable the best possible technology maturity assessments.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605799D8Z - Emerging Capabilities						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P799 Emerging Capabilities	19.908	23.073	19.981					

A. Mission Description and Budget Item Justification:

This funding request supports the development of emerging capabilities under the Directorate of Defense Research & Engineering's Rapid Reaction Technology Office (RRTO). These funds are used to advance interagency capabilities in mutual areas of interest through focused partnerships and projects with other federal departments and agencies. In addition to supporting interagency cooperation, this PE incubates selected concepts and technologies of interest to joint warfighters and their interagency partners to provide mature options as capability needs emerge in and beyond the FYDP. This includes developing risk-reducing prototypes to demonstrate capabilities in response to joint warfighter and interagency partners' shared requirements; and informing the Joint Capabilities Integration & Development System and acquisition system through technical demonstrations. Individual projects are developed and funded over three to five years with interagency partners and generally do not include stand-alone studies. Funding for this PE permits support for four to five projects per year. Typically, these projects support mid-term irregular warfare needs aligned with those of interagency partners. This program element has evolved from exclusive support of force transformation activities to the activities described above, more closely aligned with departmental goals.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605799D8Z - Emerging Capabilities
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	20.407	20.701	21.361	
Current BES/President's Budget (FY 2010)	19.908	23.073	19.981	
Total Adjustments	-0.499	2.372	-1.380	
Congressional Program Reductions				
Congressional Rescissions		-0.128		
Congressional Increases		2.500		
Reprogrammings				
SBIR/STTR Transfer	-0.457			
Other	-0.042		-1.380	

FY 2010 changes reflect executive programmatic adjustments.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605799D8Z - Emerging Capabilities				PROJECT P799			
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P799 Emerging Capabilities	19.908	23.073	19.981					

A. Mission Description and Budget Item Justification:

This funding request supports the development of emerging capabilities under the Directorate of Defense Research & Engineering's Rapid Reaction Technology Office (RRTO). These funds are used to advance interagency capabilities in mutual areas of interest through focused partnerships and projects with other federal departments and agencies. In addition to supporting interagency cooperation, this PE incubates selected concepts and technologies of interest to joint warfighters and their interagency partners to provide mature options as capability needs emerge in and beyond the FYDP. This includes developing risk-reducing prototypes to demonstrate capabilities in response to joint warfighter and interagency partners' shared requirements; and informing the Joint Capabilities Integration & Development System and acquisition system through technical demonstrations. Individual projects are developed and funded over three to five years with interagency partners and generally do not include stand-alone studies. Funding for this PE permits support for four to five projects per year. Typically, these projects support mid-term irregular warfare needs aligned with those of interagency partners. This program element has evolved from exclusive support of force transformation activities to the activities described above, more closely aligned with departmental goals.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Wolf Pack Platoon	5.950	3.000	3.000	

Project Description: Wolf Pack is a prototype development project focused on enhancing the combat effectiveness of Army/Marine Corps/coalition small ground units. The project is designed to find, coordinate, integrate, experiment with and test emerging but relatively mature concepts and technologies that can rapidly address current capability gaps. Wolf Pack is intended to act as a force-multiplier for small units and will operate within existing force structure, command, doctrinal and equipment arrangements. The overall Wolf Pack capability combines a variety of mounted and dismounted technologies. Collectively, these technologies can be assigned to one of the following potential subordinate capability elements: Situational Awareness, Communications, Mobility, Force Protection, Direct Fire, Non-Lethal Fires, Surveillance and Target Acquisition (STA), and Biometrics.

FY 2008 Accomplishments: During FY 08, multiple small unit enhanced technological capabilities were successfully integrated aboard three different support platforms, to include communications, target acquisition, lethal and non-lethal weapons, force protection, mobility, and biometrics. Two month-long field tests of this prototype equipment were conducted at Twenty-nine Palms, California, in support of the US Army, US Marine Corps, and coalition partners. Additionally, a relationship with the US Army was established to transition selected elements of the Wolf Pack equipment suite onto existing US Army vehicle platforms.

FY 2009 Accomplishments and Plans: During FY 09, Project Wolf Pack's main effort is the successful transition of Wolf Pack equipment to a US Army program of record. Two supporting efforts include an operational demonstration of the Wolf Pack equipment suite during the US Pacific Command coalition exercise TALISMAN SABER 09 (this is not an acronym) and a cooperative field test of Wolf Pack sensors and command and control equipment conducted with US Northern Command in support of the US Customs and Border Patrol Service. Additionally, Project Wolf Pack is executing a field interoperability experiment with the CASSANDRA (this is not an acronym) electronic warfare Joint Concept Technology Demonstration project. At the end of FY 09, Project Wolf Pack will achieve all planned goals, and with the successful transition to the US Army's Mission Enhancement Program, and will close out as an OSD project.

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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Overwatch			4.200	

Project description: Overwatch is a new project, focused specifically on enhancing command and control capabilities for service and interagency small units. It will build upon the ground work and past successes of Project Wolf Pack, but will concentrate on developing immediately useful prototype equipment to provide advanced command and control and enhanced surveillance capabilities originally developed for the military that also have immediate applicability for DHS field units. Based on the capability gaps and stated needs of the services and DHS, this project will also experiment with concepts of operation, tactics, techniques and procedures with special emphasis on command and control and surveillance. Prototype equipment will use a systems approach to integrate open architecture, modular, and mature technology. It will serve to improve interoperability of DOD and interagency partners in field environments.

FY 2010 Plans: Overwatch will focus primarily on enhancing situational awareness and command and control abilities of small units. Using currently available and emerging military and commercial equipment, this project will produce modular, open-architecture prototypes that will immediately support a wide variety of small units across the spectrum of mission environments and can also inform the requirements development and acquisition communities.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Operationally Responsive Space	1.500			

Project Description: The Operationally Responsive Space (ORS) project is an innovative model to rapidly provide operationally useful information to forces in the field at a lower cost, giving them enhanced power and flexibility to deal with complex and rapidly changing threats. ORS seeks to achieve that by complementing existing space-based capabilities, utilizing commercially-available capabilities, and developing new flexible, networked space capabilities that can be assembled and launched on demand in a cost effective manner. The ORS project funded development of the building blocks for rapid, low-cost systems, such as experimental TacSats; low-cost, partially reusable launch systems; standard "plug and play" satellite buses; and standardized satellite-payload integration. The first ORS prototype, called TacSat-1, was developed in less than a year at a cost of \$15 million, demonstrating the ability to rapidly provide an operationally relevant capability to the warfighter.

FY 2008 Accomplishments: Modified the TacSat-1 satellite with an unclassified "automatic identification system" payload (renamed TACSAT-1A). Completed transitioning activities to the Joint Operationally Responsive Space Office at Kirtland AFB, NM. Completed all 15 Payload Technology Development projects (FY06 \$17M to Naval Research Lab). Delivered Satellite Technology/Standard Bus Recommendations and Plan to the Joint ORS Office.

FY 2009 Accomplishments and Plans: ORS activities are transitioning to the Joint ORS Program Office. No further ORS activities planned with this PE.

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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Tactical Relay Mirror Systems	1.050			

Project Description: The Tactical Relay Mirror System (TRMS) is a joint project with the Air Force Research Laboratory to examine the feasibility of redirecting laser energy by pairing an optical relay mirror system with an airborne platform to significantly extend the range of directed energy for the destruction of potential targets in the air (cruise missiles, ballistic missiles, aircraft) or on the ground. TRMS would provide commanders with enhanced capabilities to communicate, sense, and target beyond the line of sight of air, land or maritime source lasers. Development is focused on converting 15-25Kw lab lasers into fieldable, transportable source lasers for use with a relay mirror to produce tactical effects. Such attributes could be particularly useful in stability operations by U.S. and coalition forces, where threats are dispersed and targets often fleeing.

FY 2008 Accomplishments: During FY 2008, funding from this PE accelerated the TRMS project by about one year with advanced procurement of higher-risk parts. Additionally, further wargaming was conducted with operational users to develop and refine concepts of operations. By the end of FY08, the program was postured to conduct high-power laser tests of the optical path. The Air Force Research Lab has fully embraced the TRMS project so funding for the TRMS project from this PE was completed in FY08 with a service lab taking full ownership of the program.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Stiletto	2.640	2.500	2.500	

Project description: Stiletto was developed to provide the DOD a dedicated operational Research and Development (R&D) maritime platform. Although the craft incorporates experimental naval architecture to explore the scalability of non-mechanical dynamic lift, carbon fiber construction, and high speed performance for military operations; it is the craft's electronic keel and associated craft characteristics (e.g., covered payload space, UAV flight deck, shallow draft, and ability to easily integrate C4I systems) that provides Stiletto her R&D capability. The electronic keel was designed to be flexible, modular and re-configurable to support near plug-and-play installation of C4I equipment used as part of experimentation. In addition to testing C4I equipment, Stiletto is ideally suited for operational experimentation and has tested unmanned systems, mine clearance sensors, and coastal warfare concepts of operations for various commands and agencies. The Stiletto vessel is homeported in Norfolk, VA.

FY 2008 Accomplishments: During FY 08, Stiletto completed 120 days of operations in support of experimentation for government labs, small businesses and academia. These experiments were conducted on the water off Norfolk, VA and within the United States Southern Command (SOUTHCOM) area of responsibility. Experimentation conducted included testing of unmanned systems, maritime domain awareness sensors, portable communications systems and situational awareness equipment. Several of the tested technologies and systems have been successfully transitioned to the services. Although not designed to be a deployable asset, Stiletto completed a 60-day deployment to Cartagena, Colombia, in support of Joint Interagency Task Force-South (JIATF-S) counter-narcotics operations. During the deployment, Stiletto deterred drug trafficking by removing shallow water sanctuaries favored by small "go-fast" drug-running boats. This deployment also permitted Stiletto to host operational testing of 10 experimental systems and technologies in a real world environment.

FY 2009 Accomplishments and Plans: During FY 09 the Stiletto project is conducting 120 days of operations in support of experimentation for government labs, small businesses and academia. A 90-day JIATF-S counter-narcotics deployment will be completed in the spring of 2009. This deployment is expanding on the interagency cooperation that was established during the FY 08 deployment to Colombia. While Stiletto continues to support its traditional customers, the program is expanding its customer base to other federal agencies. Experiments and testing for DHS civilian law enforcement agencies are scheduled for spring deployment. DEA is providing a boat crew for a portion of the JIATF-S deployment. Additionally, Stiletto is participating in SOUTHCOM's theater security cooperation operations in the eastern Caribbean while deployed. Stiletto is also participating in Project Thunderstorm (see below) during FY09. Several equipment upgrades are enhancing Stiletto's capabilities as both a test bed and as a deployable asset. Stiletto also supports United States Special Operations Command experimentation efforts.

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FY 2010 Plans: The Stiletto project will continue its operational experimentation through FY 10 as well as the identification, design and execution of continued upgrades to Stiletto's equipment and hull; continue supporting combatant command (COCOM), service, and interagency experimentation. Specific experiments with SOUTHCOM are planned and opportunities with US Northern Command will be evaluated.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Griffin	1.500			

Project Description: The Griffin project will develop a system that autonomously allows multiple unmanned surface vessels (USVs) to perform a mission cooperatively. To accomplish that, the project will develop and install autonomous command and control systems and integrate associated sensors on two current USVs to demonstrate a maritime domain awareness (MDA) task cooperatively. The goal is to provide a system that is capable of supporting a 24-hour patrol mission with minimal human interaction, until a target of interest is identified, at which time the system can either interrogate the target autonomously with its sensors, or request operator support for interacting with the target. This capability will ultimately reduce manning requirements, allowing the tender vessel/station to conduct normal operations while the USV is conducting its assigned mission.

FY 2008 Accomplishments: Developed a plan to develop an unmanned surface vessel (USV) with the ability to autonomously operate and cooperate with additional unmanned systems. Finalized design of USV, awarded contracts, and completed modeling and craft construction.

FY 2009 Accomplishments and Plans: While the Griffin project will continue in FY09, it is funded under a different program element which is more closely aligned with the objectives of the project. No further funding planned with this PE.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Pelican	5.000	10.500	3.681	

Project Description: In conjunction with the NASA-Ames Research Center, the Department has undertaken an effort called "Project Pelican" to develop a prototype rigid aeroshell, variable buoyancy air vehicle (RAVB). The Pelican RAVB prototype will demonstrate the technical maturity of a scalable vertical takeoff and landing aircraft. Key technologies to be demonstrated include a buoyancy management system to enable ballast-independent operations, composite lightweight rigid external structure to reduce environmental restrictions, a responsive low-speed/hover control system with associated control algorithms, and a ground handling subsystem to enable operations on unimproved landing surfaces.

The program objective is to mitigate long-term technical risk by integrating and demonstrating a suite of technologies with the potential to reduce operational constraints on future heavy-lift, buoyant-aircraft development programs. If successful, the Pelican prototype will enable the rapid development of a nascent class of air vehicle which will radically reduce the energy use per ton-mile of airlift operations, permit high-payload operations directly into and out of austere regions with little infrastructure, and enable long-endurance manned or unmanned air operations.

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RAVB aircraft appear to be potentially scalable to payloads of 500-1,000 tons (compared with payloads in the 125 ton range for the largest current US airlifters). With cruise speeds of 80-100 knots, RAVB aircraft could surpass by several times the speed of fast sealift. With the potential to operate from land or water with very little infrastructure, RAVB aircraft may also drastically reduce the need for intermodal transportation as cargo moves from origin to point of need, with corresponding reduction in delivery times.

Project Pelican will be conducted over a five-year period with the first three years consisting of vehicle design, analysis, and subsystem prototyping/testing. Year four will involve systems integration and construction with ground and flight testing being conducted in year five.

FY 2008 Accomplishments: Conducted design and risk-reduction work in developing a scaled prototype RAVB air vehicle capable of ballast-independent operations. FY08 funding enabled NASA to conduct technical due diligence work and begin conducting risk reduction prototyping efforts on materials, flight control systems, structures, and buoyancy management systems.

FY 2009 Accomplishments and Plans: The government Pelican team is conducting a Conceptual Design Review of the proposed RAVB air vehicle during FY09. Additionally, the government team approved the purchase of certain long-lead hardware and materials to enable risk-reducing prototype efforts. The contractor expects to deliver first prototypes and test components for the following critical sub-systems: the primary structural load path, truss frame elements, propulsion unit, buoyancy management components, low speed flight control system, landing system, cockpit layout, and vehicle control units. The rapid prototyping and test efforts underway will inform and shape the FY10 effort.

FY 2010 Plans: During FY10, the government team intends to conduct a Preliminary Design Review of proposed RAVB air vehicle. Subsystem component prototyping and test iterations for the above systems will continue with the addition of the pneumatics, fuel, electrical, and avionics subsystems. At the end of FY10, the team will be in a position to conduct the Critical Design Review and begin major system assembly.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Thunderstorm		5.000	4.800

Project Description: A follow-on to RRTO's "Bluegrass" efforts, Thunderstorm will establish an enduring Multi-platform, multi-sensor Intelligence Surveillance and Reconnaissance (ISR) test bed using SOUTHCOM's JIATF-S as an operational venue to conduct operational experiments with next generation detection, cueing, monitoring, tracking, and handoff capabilities against asymmetric target sets.

JIATF-S was chosen because the Irregular Warfare environment is similar to Iraq and Afghanistan (non-state actors, ad hoc networks, and an adaptive enemy), but is not as operationally stressing. The availability of operational intelligence architectures coupled with a true interagency, multi-national organizational construct make JIATF-S a realistic environment to vet capabilities prior to deployment to more stressing operational environments.

In addition to providing relevant intelligence to support JIATF-South operations, Thunderstorm will also encourage greater cooperation with multi-agency/multinational partners, and identify improvements in ISR concepts of operations that can be exported for other AORs to leverage. Like Bluegrass, OSD will make Thunderstorm data available to facilitate government and industry requirements and capabilities development.

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FY 2009 Accomplishments and Plans: Thunderstorm is exercising in a series of spirals centered on challenge problems that addressed unraveling Irregular Warfare-like networks to reduce illicit traffic (maritime in the Caribbean, air, land, and sea). Thunderstorm spirals are executed every spring and fall, with the first spiral executed in March 2009. The Thunderstorm Interagency partnership is principally from the intelligence community and includes DHS, DEA, CIA, USCG, NSA, NRO, and NGA.

FY 2010 Plans: Partner with the Secretary of Defense's ISR Task Force to execute 2-3 spirals focused on ISR capabilities being evaluated for theater deployment.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Transitional Law Enforcement (TLE)	0.625	0.200	1.500	

Project Description: Leaders in a variety of organizations including the Department of Defense, Department of State, and Department of Justice have recognized the need to increase 'cop-like' skills for improved operational outcomes in current and future conflicts. The Transitional Law Enforcement (TLE) project will advance current thinking on the nature of, and need for, policing capability across DOD, the services and the interagency to support complex warfighting, conflict resolution, stabilization and reconstruction.

The project will define deployable policing capabilities in terms of the full-spectrum of organizational and conceptual changes required to be relevant, practical and realistic for the US military and interagency (e.g. training and working with local police forces, 'cop-like' skills for general purpose forces, forensic/investigative skills for counterinsurgency and counterterrorism, interagency collaboration on security sector reform). It will also develop a clear framework to train, sustain and employ deployable TLE capability for modern conflict across military and interagency organizations. The project is expected to capture existing initiatives and identify high priority projects/specific capability gaps, including innovative technologies and technological interoperability between military and civilian law enforcement agencies.

The initial benefit of this project will be establishing a common understanding of the problem space for organizations involved in developing and managing policing capabilities. Creating a community of practitioners across the government will increase knowledge sharing and collaboration, improve existing projects, reduce overlap and potentially start new efforts.

FY 2008 Accomplishments: In conjunction with the US State Department, Department of Justice, and Department of Homeland Security, the TLE project developed a conceptual model for agency roles in providing TLE capability in a post-conflict stability and reconstruction environment. The project established a framework for understanding and analyzing the various organizations involved in law enforcement activities across the government and analyzed their authorities relevant to transitional law enforcement. The analysis identified options for providing the required capability within the context of the U.S. political environment.

FY 2009 Accomplishments: Based on the initial interagency evaluation of law enforcement capabilities, the US Marshal Service was identified as a potential transition partner for creating an organizational capability to integrate law enforcement techniques, skills and personnel into international military operations. FY2009 activities included a survey of capabilities and technologies available to civilian law enforcement agencies and military organizations engaged in law enforcement-type activities to determine interoperability and technological gaps. Currently, we are developing wargames and field activities utilizing the Marshal Service and interagency partners either focused on border patrol activities or international stabilization and reconstruction operations.

FY 2010 Plans: Continue work with the US Marshal Service, DHS, DOJ, and DOS to develop better coordination of TLE training standards, equipment interoperability, and performance metrics. Conduct wargames to identify the appropriate coordinating functions for TLE in different environments (cross-border security, stabilization and reconstruction of failed states).

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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Program Support	0.300	0.300	0.300	

Project Description: Ongoing support to the office includes management and analysis of highly specialized defense research and engineering technologies and projects. Support includes technical, financial, administrative and programmatic analysis of current planned research and engineering projects as well as development of future plans and activities. Additional tasks include the development of outreach plans and activities in conjunction with individual projects and their milestones.

FY 2008 Accomplishments: Provided management and analysis of highly specialized defense research and engineering technologies. Support included technical, financial, administrative and programmatic analysis of current and planned research and engineering projects, including Wolf Pack, Stiletto, Pelican, Transitional Law Enforcement, and ORS.

FY 2009 Accomplishments and Plans: Same as FY 2008.

FY 2010 Plans: Same as FY 2008.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Additional Programs	1.343	1.573		

Additional programs to be funded will be assigned in FY 2009/2010 based on operational requirements and the technical maturity of emerging technologies.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
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Labs/Centers:

	Naval Surface Warfare Center, Carderock Division,	Norfolk, VA, USA	Program manager for Stiletto Project. All funds sent via MIPR. Carderock then conducts all technical, contract and performance management functions, and disperses funds as appropriate to other government agencies and industry vendors.	
	Naval Surface Warfare Center, Dahlgren Division	Dahlgren, VA, USA	Program manager for Wolf Pack Platoon project. All funds sent via MIPR. Dahlgren then procures the vehicles and technology by executing contracts with industry vendors, and conducts system integration, engineering and testing.	
	Naval Research Laboratory	Washington, D. C., USA	Program manager for Operationally Responsive Space project. All funds sent via FAD. NRL then conducts all technical, contract and performance management functions, and disperses funds to other government agencies (such as the Air Force Research Lab/Space Vehicle Systems Directorate, Kirtland Air Force Base, Albuquerque, NM, USA) and industry vendors.	

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APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE
0605804D8Z - Developmental Test and Evaluation

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
Total Program Element (PE) Cost	17.452	23.566	23.512				
P804 Developmental Test and Evaluation	14.795	19.193	19.148				
P805 Software Engineering and System Assurance	2.657	2.873	2.764				
P806 Energy		1.500	1.600				

A. Mission Description and Budget Item Justification:

This program supports systems engineering and technical analysis and engineering evaluation of the Department's weapons systems. Activities in this program include developing and disseminating policy and guidance to support acquisition Developmental Testing and Evaluation. This program provides updates to DoD 5000.02 and the Defense Acquisition Guidebook (DAG) and tracks and evaluates the effectiveness of the Test and Evaluation Strategy (TES) and the Test and Evaluation Master Plan (TEMP) process. Efforts determine the adequacy of system or system of systems test program structure and development plans, substantiation of technical performance requirements achievement, identification of weapon system cost performance trade-offs/design risks, system certification for Operational Test and Evaluation, and ensures programs are sound, well executed and sufficiently address warfighter requirements. This program also funds the evaluation of safety best practices, procedures, methods and tools to support sound, stable acquisition programs.

This program develops education and training materials for instructing, maintaining and enhancing the defense acquisition workforce. Activities include developing guidance to enhance T&E acquisition career planning and progression, monitoring and facilitating Defense Acquisition University (DAU) updates of test and evaluation course to ensure curriculum represents the education and training requirements necessary to be a viable team member in the acquisition process

This program provides necessary modeling and simulation policy and guidance, clarifies the application of distributed simulation standards and works with the DoD modeling and simulation community to identify and prioritize required capabilities and competencies needed to support acquisition modeling and simulations.

FY 2009 will see a significant ramp-up in activity as the Departments takes the revitalization of Systems and Software Engineering to the next level. Traction is being gained in implementation of systems engineering and a renewed focus on developmental test and evaluation. The department must redouble its efforts to create Centers of Excellence and increased direct support to program through program support reviews, best practices identification and dissemination and more intensive development T&E prior to Initial Operational Test and Evaluation (IOT&E). New approaches, with associated policy, guidance, education and training are essential in software engineering and systems assurance as the department is becoming increasing dependent on a more globalized information Technology market place.

This program funds technical analyses and policy guidance for the Department of Defense (DoD) energy programs. In FY 2009 Project P806 Energy will be broken out separately from P804.

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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	18.550	20.396	20.845	
Current BES/President's Budget (FY 2010)	17.452	23.566	23.512	
Total Adjustments	-1.098	3.170	2.667	
Congressional Program Reductions				
Congressional Rescissions		-0.130		
Congressional Increases		3.200		
Reprogrammings	-0.540	0.100		
SBIR/STTR Transfer	-0.520			
Other	-0.038		2.667	

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08	See Below					
09	See Below					
10	See Below					

Comment:

Strategic Goals Supported: Technical Readiness and Technology Maturity

FY 2008 Accomplishments: Monitored effectiveness of guidance in acquisition programs.

Metric - Updated training at DAU; and publicized DAG changes Chapter 4 (SE) and 9 (T&E).

FY 2009 Plans: Update training at DAU, publicize at PEO/SYSCOM and industry events in FY 2009; and monitor effectiveness of guidance in acquisition programs.

FY 2010 Plans: Monitor effectiveness of guidance in acquisition programs; and develop modifications to guidance, if required.

Strategic Goals Supported: Improve Modeling and Simulations (M&S) in Systems Engineering and Lead Acquisition Community

FY 2008 Accomplishments: Provided necessary, SE, Developmental Test & Evaluation (DT&E) M&S policy and guidance.

Metric: Published M&S Cross-Cutting Business Plan; Provided necessary A&T, SE, and DT&E M&S policy and guidance; Developed M&S project proposals provided evaluation guidance; Identified M&S competencies needed to support acquisition.

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APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 6

PE NUMBER AND TITLE

0605804D8Z - Developmental Test and Evaluation

Strategic Goals Supported: Improve Joint Warfighting Capability

FY 2008 Accomplishments: Guided development of T&E infrastructure to support concept development and DT&E in improving Joint Warfighting Capabilities.

Metric: Joint Test T&E Joint Feasibility Studies (JFS) selected; JT&E Program Test Plans signed; and JME Continuous Learning Module (CLM) developed.

FY 2009 Plans: Draft JME DoD test policy; monitor and facilitate improvements of T&E methods and processes; and monitor and facilitate improvements of T&E infrastructure to support Joint Warfighting Capability concept development.

FY 2010 Plans: Monitor and facilitate improvements of T&E methods and processes to support Joint Warfighting Capability concept development.

Strategic Goals Supported: Test Resources/Targets availability to meet T&E requirements

FY 2008 Accomplishments: Ensured targets are sufficiently threat representative and available.

Metric: Fifth generation full scale aerial target AoA completed; and Threat D anti-ship missile target Request for Proposals released.

FY 2009 Plans: Monitor resource availability; draft Fifth generation full scale aerial target development plan; monitor FY 2007 Test Resource Management Center (TRMC), Strategic Plan implementation; and monitor Threat D anti-ship missile target progress.

FY 2010 Plans: Monitor resource availability; monitor TRMC, Strategic Plan implementation; and monitor Threat D anti-ship missile target progress.

Strategic Goals Supported: Safety - Support Defense Safety Oversight Council 50% Accident Reduction Goal

2008 Accomplishments: Developed safety best practices and procedures to support acquisition programs.

Metric: Chaired Acquisition Technology Program Task Force.

FY 2009 Plans: Integrate safety process advances into DOD 5000.02 and the DAG to reflect reporting safety risks throughout systems life cycle; evaluate/introduce safety technologies into new and legacy systems; and streamline joint safety certification requirements.

FY 2010 Plans: Evaluate current safety practices and provide guidance, as required.

Strategic Goals Supported: Energy - Acquisition Investment Decisions

FY 2008 Accomplishments: Implemented policy regarding valuing energy in Acquisition Investment Decisions.

Metric: Supported Defense Science Board Energy Security Study; and led Institute for Defense Analyses (IDA) study on developing analytical tools and methodologies to support the Fully Burdened Cost of Fuel (FBCF) Pilot Program.

FY 2009 Plans:

Complete FBCF Pilot; integrate FBCF in Life Cycle Cost analyses; integrate FBCF construct with energy KPP; develop energy guidance and policy to value energy early in acquisition processes; develop FBCF course modules for DAU; provide necessary M&S policy and guidance; execute acquisition M&S master plan; manage M&S Steering Committee funded projects; and develop M&S policy & guidance recommendations, as required.

FY 2010 Plans: Provide M&S policy and guidance.

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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P804 Developmental Test and Evaluation	14.795	19.193	19.148				

A. Mission Description and Budget Item Justification:

This (P804) program supports systems engineering and technical analysis and engineering evaluation of the Department's weapons systems. Activities in this program are broken out into two focus areas and include developing and disseminating policy and guidance to support acquisition Developmental Testing and Evaluation, and the second focus area funds program Assessments and Support and the technical management oversight for major defense acquisition programs (MDAPs). This program provides updates to DoD 5000.02 and the Defense Acquisition Guidebook (DAG) and tracks and evaluates the effectiveness of the Test and Evaluation Strategy (TES) and the Test and Evaluation Master Plan (TEMP) process. Efforts determine the adequacy of system or system of systems test program structure and development plans, substantiation of technical performance requirements achievement, identification of weapon system cost performance trade-offs/design risks, system certification for Operational Test and Evaluation, and ensures programs are sound, well executed and sufficiently address warfighter requirements. This program also funds the evaluation of safety best practices, procedures, methods and tools to support sound, stable acquisition programs.

Activities include the following:

- Working with program managers to prepare system engineering plans (SEPs) to document the technical management approach.
- Conduct periodic visits during technical reviews to confirm programs are executed in accordance with the SEP.
- Review all aspects of the systems engineering process for individual assigned weapon system programs to ensure they are adequate to support fielding and the achievement of cost and performance goals.
- Participate in Test and Evaluation (T&E) Integrated product Teams (IPTs), T&E Working IPTs, Systems Engineering (SE) IPTs and SE WIPTs.
- Work with DoD Service program managers, their staffs, and other support organizations, technical authorities, and oversight organizations to develop and implement technical management programs for major defense acquisition program (MDAPS).
- Work to identify and resolve T&E issues, and assists in removing roadblocks to allow program test teams to develop baseline knowledge that aids in program decision making, notifying leadership immediately of issues that will have an impact on programs.
- Conceive plans and lead program support reviews and assessments of MDAP weapons systems and other programs (e.g., Major Automated Information Systems) to shape technical planning and management.
- Conduct assessments of operational test readiness (AOTR), and Nunn-McCurdy certification reviews to confirm the maturation of system capabilities during developmental testing and readiness to proceed into the initial operational test and evaluation with a high probability of being found operationally effective, suitable and survivable.
- Conduct non-advocate reviews (NAR) sponsored by the program offices for assigned programs.

This program develops education and training materials for instructing, maintaining and enhancing the defense acquisition workforce. Activities include developing guidance to enhance T&E acquisition career planning and progression, monitoring and facilitating Defense Acquisition University (DAU) updates of test and evaluation course to ensure curriculum represents the education and training requirements necessary to be a viable team member in the acquisition process

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605804D8Z - Developmental Test and Evaluation	PROJECT P804
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This program provides necessary modeling and simulation policy and guidance, clarifies the application of distributed simulation standards and works with the DoD modeling and simulation community to identify and prioritize required capabilities and competencies needed to support acquisition modeling and simulations.

FY 2009 will see a significant ramp-up in activity as the Department takes the revitalization of Systems and Software Engineering to the next level. Traction is being gained in implementation of systems engineering and a renewed focus on developmental test and evaluation. The department must redouble its efforts to create Centers of Excellence and increased direct support to program through program support reviews, best practices identification and dissemination and more intensive development T&E prior to Initial Operational Test and Evaluation (IOT&E). New approaches, with associated policy, guidance, education and training are essential in software engineering and systems assurance as the department is becoming increasingly dependent on a more globalized information Technology market place.

This program funds technical analyses and policy guidance for the Department of Defense (DoD) energy programs. In FY 2009 Project P806 Energy will be broken out separately from P804.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Strategic Goals Supported: Technical Readiness and Technology Maturity	14.795	19.193	19.148

FY 2008 Accomplishments: Monitored effectiveness of guidance in acquisition programs.
 Performed over 28 program support reviews, assessment of operational test readiness reviews, non-advocate reviews, joint assessment team, and defense support team reviews.
 Worked with Service components to develop, review, coordinate and staff for approval over 40 SEPs, TES, and TEMPs.
 Metric - Updated training at DAU; Publicized DAG changes Chapter 4 (SE) and 9 (T&E).
 FY 2009 Plans: Update training at DAU, publicize at PEO/SYSCOM and industry events in FY 2009; Monitor effectiveness of guidance in acquisition programs.
 Plan to perform approximately 33 MDAP program assessments to include; program support reviews, assessment of operational test readiness reviews, non-advocate reviews, joint assessment team, and defense support team reviews. Plan to work with Service components to shape, review, coordinate and staff for approval approximately 45 SEPs, TES, and TEMPs.
 FY 2010 Plans: Monitor effectiveness of guidance in acquisition programs; and develop modifications to guidance, if required.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Strategic Goals Supported: Improve Modeling and Simulations (M&S) in Systems Engineering and Lead Acquisition Community			

FY 2008 Accomplishments: Provided necessary, SE, Developmental Test & Evaluation (DT&E) M&S policy and guidance.
 Metric: Published M&S Cross-Cutting Business Plan; provided necessary A&T, SE, and DT&E M&S policy and guidance; developed M&S project proposals provided evaluation guidance; and identified M&S competencies needed to support acquisition.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
RDTE, Defense Wide BA# 6	0605804D8Z - Developmental Test and Evaluation	P804		
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Strategic Goals Supported: Improve Joint Warfighting Capability				
FY 2008 Accomplishments: Guided development of T&E infrastructure to support concept development and DT&E in improving Joint Warfighting Capabilities. Metric: Joint Test T&E Joint Feasibility Studies (JFS) selected; JT&E Program Test Plans signed; and JME Continuous Learning Module (CLM) developed. FY 2009 Plans: Draft JME DoD test policy; monitor and facilitate improvements of T&E methods and processes; and monitor and facilitate improvements of T&E infrastructure to support Joint Warfighting Capability concept development. FY 2010 Plans: Monitor and facilitate improvements of T&E methods and processes to support Joint Warfighting Capability concept development.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Strategic Goals Supported: Test Resources/Targets availability to meet T&E requirements				
FY 2008 Accomplishments: Ensured targets are sufficiently threat representative and available. Metric: Fifth generation full scale aerial target AoA completed; and Threat D anti-ship missile target Request for Proposals released. FY 2009 Plans: Monitor resource availability; Draft Fifth generation full scale aerial target development plan; monitor FY 2007 Test Resource Management Center (TRMC), Strategic Plan implementation; and monitor Threat D anti-ship missile target progress. FY 2010 Plans: Monitor resource availability; monitor TRMC, Strategic Plan implementation; and monitor Threat D anti-ship missile target progress.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Strategic Goals Supported: Safety - Support Defense Safety Oversight Council 50% Accident Reduction Goal				
2008 Accomplishments: Developed safety best practices and procedures to support acquisition programs. Metric: Chaired Acquisition Technology Program Task Force. FY 2009 Plans: Integrate safety process advances into DOD 5000.02 and the DAG to reflect reporting safety risks throughout systems life cycle; evaluate/introduce safety technologies into new and legacy systems; and streamline joint safety certification requirements. FY 2010 Plans: Evaluate Current Safety Practices and provide guidance, as required.				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Strategic Goals Supported: Energy - Acquisition Investment Decisions				
FY 2008 Accomplishments: Implemented policy regarding valuing energy in Acquisition Investment Decisions Metric: Supported Defense Science Board Energy Security Study; led Institute for Defense Analyses (IDA) study on developing analytical tools and methodologies to support the Fully Burdened Cost of Fuel (FBCF) Pilot Program. FY 2009 Plans: Complete FBCF Pilot; integrate FBCF in Life Cycle Cost analyses; integrate FBCF construct with energy KPP; develop energy guidance and policy to value energy early in acquisition processes; develop FBCF course modules for DAU; provide necessary M&S policy and guidance; execute Acquisition M&S Master Plan; manage M&S Steering Committee funded projects; and develop M&S policy & guidance recommendations, as required. FY 2010 Plans: Provide M&S policy and guidance.				

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605804D8Z - Developmental Test and Evaluation	PROJECT P804
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
University Affiliated Research Center for systems engineering				

FY 2008 Accomplishment: Established University Affiliated Research Center for systems engineering research.

FY 2009 Plans: Perform systems engineering research at University Affiliated Research Center

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605804D8Z - Developmental Test and Evaluation					PROJECT P805	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P805 Software Engineering and System Assurance	2.657	2.873	2.764					

A. Mission Description and Budget Item Justification:

In Fiscal Year (FY) 2008, the Software Intensive Systems funding line was transferred from PE0603782D8Z to the Developmental Test and Evaluation line and renamed Systems Engineering and Software Assurance. This project focuses specifically on the acquisition of software intensive systems, and the developmental test and engineering of software. Efforts in this project are focused on software specific engineering issues such as engineering large scale complex systems from software components, software architecture, design and integration and test practices, prevention of malicious tampering (engineering for software assurance), and development tools, education and guidance for software professionals. Efforts are linked with Major Defense Acquisition Program (MDAP) support activities, and enable development of a core competency and software expertise that is provided directly to our programs. Based on this MDAP support, this project will evaluate software issues, and analyze systemic software issues such that cross-cutting corrective action may be taken. The latter activities help establish a baseline and measure a declining number of software issues in our defense acquisition programs.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
FY 2008 Accomplishments:	2.657		

Support Acquisition Success:

- Provided software and system assurance expertise for Acquisition Category (ACAT) ID/IAM and special interest programs.

Improved State-of-the-Practice of Software Engineering:

- Identified and addressed systemic issues related to software.
- Published System Assurance Guidebook.
- Conducted pilot application of the System of System (SoS) Engineering Guidebook.
- Developed objectives for v2.0 update to the Capability Maturity Model Integration (CMMI).

Provided Software Leadership and Outreach:

- Implemented Department/National strategic plan for meeting defense software requirements.
- Participated in Service-led software initiatives, e.g., Army Strategic Software Improvement Program and multi-national forums, e.g., Software Intensive Systems Acquisition Improvement Group.

Ensured Adequate Software Resources to Meet DoD Needs:

- Developed strategy to address human capital recommendations from Software Industrial Base Study, Software Summit
- Reviewed Defense Acquisition University (DAU) curriculum and knowledge management services, e.g., Communities of Practice, Best Practices Clearinghouse, for software content and recommend changes.

Objectives: Tools, techniques identified; program support provided to ACAT ID/IAM and special interest programs; and partners established, agenda set.

Artifacts: System of Systems Engineering Guide; initial software systemic findings; System Assurance Guide; DoD Software Strategic Plan; and conference sponsorship and participation (e.g., Systems and Software Technology Conference, Systems Engineering).

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE 0605804D8Z - Developmental Test and Evaluation				PROJECT P805
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<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2009 Plans:		2.873	2.764	

Support Acquisition Success:

- Provide software and system assurance expertise for ACAT ID/IAM and special interest programs.

Improve State-of-the Practice of Software Engineering:

- Identify and address systemic issues related to software.
- Establish System Assurance policy for DoD acquisition programs.
- Perform v2.0 update to the Capability Maturity Model Integration (CMMI).
- Update System of System (SoS) Engineering Guidebook based on pilot applications.

Provide Software Leadership and Outreach:

- Participate in Service-led software initiatives, e.g., Army Strategic Software Improvement Program and multi-national forums, e.g., Software Intensive Systems Acquisition Improvement Group.
- Continue implementation of Department/National strategic plan for meeting defense software requirements.

Ensure Adequate Software Resources to Meet DoD Needs:

- Implement human capital recommendations from Software Industrial Base Study, Software Summit.

Objectives: Tools and techniques updated; program support provided to ACAT ID/IAM and special interest programs; expanded set of partners and updated agenda.

Artifacts: SoS Engineering Guide, CMMI v2.0, DoD Software Strategic Plan; conference sponsorship and participation (e.g., Systems and Software Technology Conference, Systems Engineering); and updated DAU curriculum with software considerations.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE 0605804D8Z - Developmental Test and Evaluation					PROJECT P806	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P806 Energy		1.500	1.600					

A. Mission Description and Budget Item Justification:

This program implements how the Department's energy demand and related costs, as outlined in the Fully Burdened Cost of Fuel (FBCF) construct detailed in the February 2008 Defense Science Board Energy Task Force report, impacts systems acquisition and life-cycle management. The 2009 NDAA mandated use of the FBCF in systems development and assessments of total ownership cost of systems.

This effort focuses on the analytical development and integration of the "Fully Burdened Cost of Fuel" concept into all DoD acquisition programs that will demand fuel in the battlespace, as formally required by the 2009 NDAA, DoD Instruction 5000.02 and other DoD strategic guidance. This work includes development of the analytical methodology, acquisition guidance and regulation revisions, and oversight of implementation across the Department. The premise of this work is that DoD cost of ownership analysis methods significantly under-value the operational delivery costs and other implications of fuel demand in the force. By accurately valuing all of the real costs of delivering fuel to the operator, acquisition programs, modernization (e.g. Army RESET) and research and development efforts will have a much clearer understanding of the value of investing to reduce energy demand.

Supporting the "Fully Burdened Cost of Fuel" implementation are efforts to include these same operational fuel delivery variables more realistically in the Joint Strategic Planning Process (force planning) and the Joint Capability Integration and Development System (JCIDS) (requirements) so as to better understand the relationship between fuel demand and operational capability across the current and future force. Funds for energy efforts transferred from P804 starting in FY2009.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2009 Plans		1.500		

Co-sponsor case study analyses with select Service organizations and the Joint Staff to determine the key variables and metrics for treating energy as a mature capability factor in the DoD requirements development and acquisition processes. Findings will inform methodological guidance and selection of capabilities and programs. Support Component wargaming and force planning, and requirements development processes to incorporate energy and fully burdened fuel costing.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
FY 2010 Plans:			1.600	

Develop Fully Burdened Cost of Fuel (FBCF) analytical methodology and refine supporting methodological guidance (instructions, manuals and handbooks) and metrics for integration and application of the FBCF into DoD acquisition system to appropriately manage energy in life-cycle costing and total cost of ownership. Develop and deploy FBCF DAU curriculum to educate the acquisition workforce. Provide management and oversight of FBCF use within the acquisition business process.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E, DW BA 06			R-1 Item Nomenclature Budget and Program Assessments, 0606100D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	1.687	5.846	5.929				
Budget and Program Assessments, P101	1.687	5.846	5.929				

A. Mission Description and Budget Item Justification:

This supports the Office of the Director, Program, Analysis & Evaluation (PA&E). It funds assessments that will help resolve budget and programmatic issues across the full range of the Department’s activities. This program initiates analysis and leverages ongoing research and study efforts occurring in the Office of the Secretary of Defense (OSD), Joint Staff (JS), Combatant Commands, the Military Departments, Defense and other federal agencies to analyze, modify, design, and balance Department capabilities.

Projects that support this effort will help inform the leadership on program alternatives, capability concept development, design and cost, the appropriate balance of capabilities across the force, identify how well the Department’s expenditures are meeting its goals, and how well the force can implement the Defense strategy.

Other studies in our analytic plan that would be funded from this source include Analytic Agenda preparatory QDR 2009-2010 work to encompass selected model and data development as well as development of new baselines for selected scenarios. In addition, analytic studies in support of acquisition milestone decisions, quick turn analysis needed in support of Nunn-McCurdy reviews, and other studies as directed by the Secretary of Defense and Congress may also be conducted. For example, in previous years analytic products included research and analysis for the E-10A, Space Radar, BAMS; Nunn-McCurdy reviews for WIN-T, SBIRS, Global Hawk; and Program Review issues for TSAT, AEHF, WGS, ABL, STSS, Battlespace Awareness portfolio, studies for information assurance, Minuteman replacement, and tactical ground communications.

Exhibit R-2, RDT&E Budget Item Justification		May 2009	
Appropriation/Budget Activity RDT&E, DW BA 06		R-1 Item Nomenclature Budget and Program Assessments, 0606100D8Z	
B. Program Change Summary:			
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Budget Estimates Submission	5.750	5.888	5.972
Current Budget Estimates Submission	1.687	5.846	5.929
Total Adjustments	-4.062	-0.042	-0.043
Congressional program reductions	-4.000	-	-
Congressional reductions (other)	-0.011	-	-
Congressional increases	-	-	-
Inflation	-	-	-
Revised economic assumptions	-0.052	-0.042	-0.043
Change Summary Explanation:			
<u>FY 2008</u>			
Congressional program reductions:			
-\$4.000 per FY 2008 Appropriations Conference Report			
Congressional reductions (other):			
-\$0.003 per section 8097 of FY 2008 Appropriations Bill (Contractor Efficiencies)			
-\$0.008 per section 8104 of FY 2008 Appropriations Bill (Economic Assumptions)			

Exhibit R-2, RDT&E Budget Item Justification		Date: May 2009
Appropriation/Budget Activity RDT&E, DW BA 06	R-1 Item Nomenclature Budget and Program Assessments, 0606100D8Z	
<p>C. Other Program Funding Summary: N/A</p> <p>D. Acquisition Strategy: A mix of competitive contracts with commercial firms and research provided by colleges and universities.</p> <p>E. Performance Metrics: The products or expected outcomes of this program are studies and analyses to support resource allocation decisions, acquisition decisions, and issues of high interest to the Secretary of Defense. Performance is measured by the quality of the analysis and is monitored through the review of our organizational assessment process. Our primary goal is to ensure that study and analytical products are timely, clear, complete, accurate, responsive, balanced, and objective.</p> <p>Findings from these efforts directly influence and shape the program of record, resulting in enhancements to warfighting capability and ensures that the Warfighter has the proper equipment and personnel for the conditions or conflicts on hand in a timely manner. Results often lead to recommendations that are implemented by the Military Departments and Combatant Commanders for force restructuring, better apportionment of assets, and the redistribution of capabilities for warfighting missions. In addition, our long-term program alternatives provide assessments to ensure acquisition investments are affordable, support the national security strategy, and balance long-term risks.</p> <p>Deliverables would include reports, briefings, and analyses designed to illuminate critical issues facing the Department. This will include recommendations for new modeling techniques, programmatic alternatives, and scenario development. The Department needs to review its current analytical tools, models, and methods to better analyze the issues we face in a new, more complex warfighting environment where we face non-state actors, interactions with coalition, foreign, state, and local law enforcement entities, and non-traditional threats such as improvised explosive devices, chemical and biological warfare agents, and WMD. Warfighting analysis has traditionally been in the kinetic domain of modeling and simulation. The new strategic environment necessitates a re-evaluation of the modeling and simulation, tools, techniques, and data that are used by the analysis community within this environment. We also need to assess our current tools and data to ensure they are congruent and support the new ways in which the Department’s leadership is beginning to think about current operations and problems (i.e., capability-portfolio analysis), such that analysis and information best serves the decision-making process.</p>		

Exhibit R-2, RDT&E Budget Item Justification						Date: May 2009	
Appropriation/Budget Activity RDT&E, DW BA 06				Project Name and Number Budget and Program Assessments, P101			
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Budget and Program Assessments, P101	1.687	5.846	5.929				

A. Mission Description and Budget Item Justification:

This supports the Office of the Director, Program, Analysis & Evaluation (PA&E). It funds assessments that will help resolve budget and programmatic issues across the full range of the Department’s activities. This program initiates analysis and leverages ongoing research and study efforts occurring in the Office of the Secretary of Defense (OSD), Joint Staff (JS), Combatant Commands, the Military Departments, Defense and other federal agencies to analyze, modify, design, and balance Department capabilities.

Projects that support this effort will help inform the leadership on program alternatives, capability concept development, design and cost, the appropriate balance of capabilities across the force, identify how well the Department’s expenditures are meeting its goals, and how well the force can implement the Defense strategy.

Other studies in our analytic plan that would be funded from this source include Analytic Agenda preparatory QDR 2009-2010 work to encompass selected model and data development as well as development of new baselines for selected scenarios. In addition, analytic studies in support of acquisition milestone decisions, quick turn analysis needed in support of Nunn-McCurdy reviews, and other studies as directed by the Secretary of Defense and Congress may also be conducted. For example, in previous years analytic products included research and analysis for the E-10A, Space Radar, BAMS; Nunn-McCurdy reviews for WIN-T, SBIRS, Global Hawk; and Program Review issues for TSAT, AEHF, WGS, ABL, STSS, Battlespace Awareness portfolio, studies for information assurance, Minuteman replacement, and tactical ground communications.

Exhibit R-2a, RDT&E Budget Item Justification	Date: May 2009
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Appropriation/Budget Activity RDT&E, DW BA 06	Project Name and Number Budget and Program Assessments, P101
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B. Accomplishments/Planned Program:

	FY 2008	FY 2009	FY 2010	
Accomplishment/Effort/Subtotal Cost	1.687	5.846	5.929	
RDT&E Articles Quantity				

FY 2008 Accomplishments:

Specific projects conducted in FY2008 are as follows:

- *Contribution of Intelligence, Surveillance, and Reconnaissance (ISR) to High-Value Target (HVT) Missions-New Locations:* Determine the right balance and size of Intelligence, Surveillance, and Reconnaissance (ISR) support for SOCOM-related High-Value Target (HVT) missions globally in order to inform DoD investment strategies for GWOT. Expanded the FY07 effort on SOF-related HVT missions in Operation Iraqi Freedom (OIF) to other areas including OEF-Afghanistan, OEF-Pakistan, and the Horn of Africa. Near- and long-term technology implications of certain ISR capabilities were assessed. The study also addressed the potential to transfer SOCOM TTPs to conventional forces for this mission. Using rigorous data-analysis, the study quantified the right balance of ISR capabilities, e.g. Full Motion Video (FMV), HUMINT, SIGINT, for success in HVT missions. Results led to increases in specific FMV capabilities, both in terms of short-term efforts (e.g. SecDEF directed ISR surge and Joint Rapid Acquisition Committee) and longer-term program-of-record enhancements. Results also informed decisions regarding better apportionment of assets, including redistribution of capabilities both into and out of CENTCOM. This study was conducted in collaboration with the Office of the Under Secretary of Defense for Intelligence (OUSD(I)).
- *ISR Support for Conventional Forces and Missions in GWOT:* This study supported OSD long-term resource decisions and CENTCOM short-term ISR operational effectiveness using a data intensive approach that quantitatively linked ISR inputs to operational outcomes (e.g. FY07 High-Value-Target ISR study). This effort involved close collaboration with OUSD(I) as well as CENTCOM and Command elements (J-2, J-3) to obtain large quantities of intelligence and operational data. The study also analyzed supporting aspects of ISR, including Tasking, Processing, Exploitation, and Dissemination (TPED) and communication (e.g. bandwidth).

Exhibit R-2a, RDT&E Project Justification		Date: May 2009
Appropriation/Budget Activity RDT&E, DW BA 06	Project Name and Number Budget and Program Assessments, P101	
<p>FY 2008 Accomplishments continued:</p> <ul style="list-style-type: none"> • <i>Enhancing Joint Analysis System (JAS) for Key Departmental Studies:</i> Enhanced the JAS to model the Homeland Defense (HD) Interdiction Analytical Baseline Study, which will also supported NORTHCOM's HD CBA. JAS and the Combating WMD Analytic Baseline are being used by DTRA for their Campaign X exercises. In addition JAS was used for a Seabasing study conducted by the Joint Staff. <p>FY 2009 Plans:</p> <p>Analysis in the following areas is planned for FY 2009:</p> <ul style="list-style-type: none"> • The Appropriate Balance Between Conventional and Irregular Warfare Capabilities • Way Ahead in Iraq and Afghanistan • Nuclear Posture Review and the Future of the Nuclear Triad • Missile Defense and the Balance Between Rouge and Regional Threats • Mismatch Between Cost of Current Forces and Projected Budgets • Role of Guard/Reserve and How Access Policies and Capability Mix Influence Force Sufficiency • Ground Force Structure Analysis and the Kinetic Battlefield to Include Analysis of Future Threats and Equipping Strategies • The Total Cost of TACAIR and Mix of Capabilities, Air-to-Air, Air Superiority, and Electronic Warfare • Readiness for the Rotating Army, Readiness in Dwell and Reachback Capabilities • C4ISR Capabilities • Strategic versus Tactical ISR • Space Strategy and Capabilities • Cyberspace Strategy and Security • Tradeoffs between C4ISR Capabilities in Space versus "Air-breathers" • Communications Architecture (TSAT, WIN-T, JTRS, Airborne Tier) • Long Wave IR • Homeland Defense and Consequence Management 		

Exhibit R-2a, RDT&E Project Justification		Date: May 2009
Appropriation/Budget Activity RDT&E, DW BA 06	Project Name and Number Budget and Program Assessments, P101	
<p>FY 2010/2011 Plans: Efforts conducted within this program reflect current and pressing challenges of the Department. As needs arise, projects are planned and formulated to solve current challenges. Consequently, the specifics efforts may vary from year to year. Nonetheless, the following areas are planned in future years:</p> <ul style="list-style-type: none"> • Continue to expand mission and regional breadth of ISR-support studies, still using data intensive approach that quantitatively links ISR inputs to operational outcomes. • Improve the accuracy of combat adjudication models and other simulation tools for studying the full range of combat operations from irregular warfare to large, full scale force-on-force combat. The effort will explore and develop techniques to explicitly account for dependencies and the constraints imposed by spatial and temporal (space and time) separations distinguishing combatants. • Assess capacity needed within DoD, as well as the role of agencies and allies in a range of scenarios against Force Planning Construct of homeland defense, irregular warfare/war on terror, and conventional conflict across steady state and surge environments. • Determine the contribution of DoD forces as part of a local, state, and federal interagency response to current and future homeland defense consequence management scenarios. • Continue assessments for technologies and strategies for space and cyberspace security <p>C. Other Program Funding Summary: N/A</p> <p>D. Acquisition Strategy: N/A</p> <p>E. Major Performers: N/A</p>		

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE PE 0606301D8Z Aviation Safety Technologies						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	0	0	8.000					

(U) **A. Mission Description and Budget Item Justification:** This funding supports Secretary Gates direction to achieve a 75% reduction in accidents and supports the Defense Safety Oversight Council's (DSOC) pursuit of aviation safety technologies. The Guidance for the Development of the Force (GDF) directs DoD Components to pursue accident reduction and prevention initiatives that emphasize safety in the workplace and hold leaders accountable for their safety programs. In FY 2008, there were 89 Class A aviation accidents with 61 destroyed aircraft and 32 fatalities. The aviation accidents cost the Department over \$2.9 billion with indirect costs approximately four times that amount.

The DSOC used a data-driven approach to identify and evaluate the most effective hardware and software technologies to be implemented to reduce preventable aviation mishaps. The DSOC task force surveyed existing programs and provided an assessment of the viability and advisability of future resource investments. These investments will fund hardware and software technology to prevent helicopters and fighter aircraft mishaps.

Although, this work is currently under review in the DoD, a specific area, collision avoidance was recommended for funding in FY 2010. Automatic Collision Avoidance Technologies (ACAT) has been developed by the Air Force to prevent the most prevalent causes of fighter/attack mishap fatalities and destroyed aircraft. An Automatic Ground Collision Avoidance (Auto-GCAS) component of ACAT has matured and is ready for fleet integration. FY 2010 money will fund continuation of the Automatic Airborne Collision Avoidance (Auto-CAS) component and retain scarce technical expertise and flight test resources in use by Auto-GCAS to mature this newer technology. As an unintended side benefit Auto-ACAS may also hold the key to Unoccupied Aerial Vehicle access to the National Airspace.

The Secretary stated that we can not and should not tolerate the injuries, costs, and capability losses from preventable accidents.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6	PE NUMBER AND TITLE PE 0606301D8Z Aviation Safety Technologies
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	0	0	0	
Current BES/President's Budget (FY 2010)	0	0	8.000	
Total Adjustments	0	0	0	
Congressional Program Reductions	0	0	0	
Congressional Rescissions	0	0	0	
Congressional Increases	0	0	0	
Reprogrammings	0	0	0	
SBIR/STTR Transfer	0	0	0	
Other	0	0	0	

C. Other Program Funding Summary: None.

D. Acquisition Strategy: N/A

E. Performance Metrics:

- Class A aviation accident rates. Number of Class A aviation accidents, (resulting in damages of \$1m or more; aircraft destroyed; and/or fatality or permanent disability), per 100,000 flying hours.
- Number of destroyed aircraft.
- Number of aviation fatalities.
- 75% reduction goal assessed against a FY 2002 baseline.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 6		PE NUMBER AND TITLE PE 0606301D8Z Aviation Safety Technologies						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	0	0	8.000					

(V) **A. Mission Description and Budget Item Justification:** This funding supports Secretary Gates direction to achieve a 75% reduction in accidents and supports the Defense Safety Oversight Council's (DSOC) pursuit of aviation safety technologies. The Guidance for the Development of the Force (GDF) directs DoD Components to pursue accident reduction and prevention initiatives that emphasize safety in the workplace and hold leaders accountable for their safety programs. In FY 2008, there were 89 Class A aviation accidents with 61 destroyed aircraft and 32 fatalities. The aviation accidents cost the Department over \$2.9 billion with indirect costs approximately four times that amount.

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The Secretary stated that we can not and should not tolerate the injuries, costs, and capability losses from preventable accidents.

<u>B. Accomplishments/Planned Program:</u>				
<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
	0	0	8.000	0

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide BA# 6

PE 0606301D8Z Aviation Safety Technologies

FY 2008 Accomplishments:

- None. This program starts in FY 2010

FY 2009 Plans:

- None. This program starts in FY 2010

FY 2010 Plans:

- Continuation of the Automatic Airborne Collision Avoidance (Auto-CAS) component.
- Retain scarce technical expertise and flight test resources in use by Auto-GCAS to mature this newer technology.
- Assess if Auto-ACAS may also hold the key to Unoccupied Aerial Vehicle access to the National Airspace.

C. Other Program Funding Summary: N/A

FY 2008

FY 2009

FY 2010

FY 2011

Comment:

D. Acquisition Strategy: N/A

E. Major Performers: DSOC, Military Departments, Air Force Research Laboratory

Exhibit R-2, RDT&E Budget Item Justification		Date: May 2009		
Appropriation/Budget Activity RDT&E Defense-Wide, BA 6		R-1 Item Nomenclature: Support to Information Operations Capabilities PE 0303166D8Z		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	33.736	34.966	30.604	
IO Capability Activities	3.470	4.565	4.700	
IO Range	10.339	10.848	11.162	
VisION	14.006	14.457	14.742	
Enhanced Simulation for Information Operations Capabilities	5.921	5.096	0	
A. Mission Description and Budget Item Justification:				
<p>These programs are each part of the Defense Department’s coordinated effort to integrate Information Operation (IO) test and evaluation capability to assess IO technologies and tactics in a representative operational environment against realistic targets. The IO Roadmap identified the need for a suite of automated data analysis and decision support software tools to facilitate joint-IO planning enabling users to accomplish Intelligence Preparation of the Battlespace (IPB), develop IO strategy and candidate IO campaign targets, plan IO missions, and monitor and assess execution. The objectives of the programs are to create a flexible, seamless and persistent environment enabling combatant commanders to achieve the same level of confidence and expertise in employing IO weapons that they have in kinetic weapons; to lead the development of a joint IO analysis, planning, and targeting capability for Service and COCOM IO operational execution; and to transform intelligence support to IO and joint IO training, education, and exercises.</p> <ol style="list-style-type: none"> 1. Information Operations Capability Activities – Develops IO Capabilities, emphasizing those that fulfill critical requirements for Combatant Commanders’ IO planners and operators. 2. Information Operations Range (IOR) - IOR establishes a secure, flexible, and seamless environment for the Services and Joint warfighters to test, train, develop tactics, and exercise selected IO capabilities. This environment enables the COCOM’s warfighters to visualize non-kinetic weapons effects, understand the intricate and interactive effects generated by kinetic and non-kinetic weapons and achieve the same level of confidence and expertise in employing IO weapons that they have with kinetic weapons. 3. Virtual Integrated Support for the Information Operations eNvironment (VisION) is the future joint IO planning and analysis system, which will integrate and synchronize IO analysis, planning, execution and assessment. VisION will support operations at multiple security levels, including coalition operations, across all Services and communities. Additionally, it will reduce duplication of effort, minimize training, speed up processes, and ensure unity of efforts throughout the DoD. 4. Enhanced Simulation for Information Operations Capabilities will provide a software architecture that can bring network management 				

to the Deputy Secretary of Defense Chartered Information Operations Range and VisION initiatives. The IO Range and VisION programs require the transfer of large amounts of data to accomplish their mission and must mitigate or overcome latency and bandwidth limitation inherent in all networks. These network limitations are especially prevalent in field operations where connectivity to networks is erratic. The DoD leadership recognizes the need to improve efficiency in utilizing non-kinetic weapons. Currently, however, the ability to create and operate the realistic operational environment required to support effective integration of these systems is limited because data transfer requirements exceed real world bandwidth limitations. The software architecture will support IO Range and VisION objectives to provide analysis, planning, rehearsal, and execution environments for US and coalition forces by enabling large-scale data transfer and providing a central integration point with new standards, and enhancing simulation capabilities. This will save considerable time and money by eliminating rewrites of existing simulations and filtering of critical data thus providing a mission critical solution that is needed by DoD now.

Program Accomplishments and Plans:

FY 2008 Accomplishments: Continued development and expansion of the IO Range, spiral development VisION, and other IO capabilities.

FY 2009 Plans: Continue development and expansion of the IO Range, spiral development of VisION, and other IO capabilities.

FY 2010 Plans: Continue development and expansion of the IO Range, spiral development of VisION, and other IO capabilities.

B. Program Change Summary: (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget	34.590	30.039	30.825
Current President's Budget	33.736	34.966	30.604
Total Adjustments	-.854	4.927	-.221
Congressional program reductions		-.193	
Congressional increases		5.120	
Department adjustments		-.070	-.221

Change Summary Explanation:

FY 2008: SBIR/STTR and department decrease.

FY 2009: Congressional increase, Congressional program reduction.

FY 2010: Department decrease.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Performance metrics are measured through internal management controls and external assessments. Performance metrics include, but are not limited to time, money, realism, and fidelity as defined below:

- Time – Will the effort enable the warfighter to speed up processes faster than current capabilities allow?
- Money – Will the effort enable the warfighter to reduce duplication of effort and to prepare and execute events at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the warfighter to create an environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort ensure unity of efforts throughout the IO Community?

Exhibit R-2a, RDT&E Project Justification			May 2009
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: IO Capability Activities	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
IO Capability Activities	3.470	4.565	4.700
RDT&E Articles Quantity	N/A	N/A	N/A
A. Mission Description and Budget Item Justification:			
<p>This capability contains classified programs. Facilitates the development of IO capabilities that support COCOMs and Services executing IO during current and future conflicts. Supports the development of IO capabilities, particularly critical emerging IO needs that support IO planners and operators.</p>			
B. Accomplishments/Planned Program			
	FY 2008	FY 2009	FY 2010
Accomplishment/ Effort/Subtotal Cost	3.470	4.565	4.700
RDT&E Articles Quantity	N/A	N/A	N/A
<p>FY 2008 Accomplishments: The project contains classified efforts. Developed IO capabilities that support COCOMs and Services executing IO during current and future conflicts. Developed IO capabilities, particularly critical emerging IO needs that support IO planners and operators.</p> <p>FY 2009 Plans: The project contains classified efforts. Funds the development of IO capabilities that support COCOMs and Services executing IO during current and future conflicts. Supports the development of IO capabilities, particularly critical emerging IO needs that support IO planners and operators.</p> <p>FY 2010 Plans: The project contains classified efforts. Funds the development of IO capabilities that support COCOMs and Services executing IO during current and future conflicts. Supports the development of IO capabilities, particularly critical emerging IO needs that support IO planners and operators.</p>			
C. Other Program Funding Summary: N/A			
D. Acquisition Strategy: N/A			
E. Major Performers: N/A			

Exhibit R-2a, RDT&E Project Justification			May 2009
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: IO Range	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
IO Range	10.339	10.848	11.162
RDT&E Articles Quantity	N/A	N/A	N/A
<p>A. Mission Description and Budget Item Justification:</p> <p>The National Military Strategy of the United States stresses the importance of integrating Information Operations (IO) capabilities for the success of Joint Operations and Decision Superiority. “Assuring information systems in the face of attack and conducting effective Information Operations” was one of the six critical operational goals in DoD’s transformation efforts (2001 Quadrennial Defense Review). The 2003 Department of Defense Information Operations (IO) Roadmap, dated 30 Oct 2003, established a requirement for an integrated range supporting “exercises, testing, and development of IO capabilities.” Further direction by OSD identified the need for an “integrated IO test and evaluation capability to assess IO technologies and tactics in a representative operational environment against realistic targets.” The FY04-09 Defense Planning Guidance (DPG) stated the need to expand IO training and education for the developing cadre of IO professionals and provide an environment for analysis, testing, training, combat assessments, and measures of effectiveness for more reliable IO capabilities. Deputy SECDEF Memorandum on the IO Range signed 18 Nov 2005 established the requirement for creating a cooperative information operations range among military services under the leadership of USJFCOM. In FY 2006, USJFCOM completed three use cases (two Service and one COCOM) and achieved initial operating capability August 2006. In FY 2007, USJFCOM completed the final use case (for U.S. Pacific Command) and began actual range testing of CNO capabilities, while preparing for expansion to accommodate EW capabilities in FY 2008.</p> <p>The Information Operations (IO) Range establishes a secure, flexible, and seamless environment for the Services and Joint warfighters to test, train, develop tactics, and exercise selected IO capabilities. The basis of the functional structure of the IO Range is the integration of existing ranges, laboratories, information warfare centers, and other Government facilities that currently support IO test, training, exercise, and experimentation events. Capabilities at the selected sites will be securely connected and integrated into the IO Range. A key feature of this concept is the persistent, secure connection that links the sites together, allowing the exchange of data and the visualization of effects as we employ capabilities. Creation of a “virtual range” based on persistent connections significantly reduces the amount of lead-time required to set up each new warfighter event. The long-term goal for the IO Range is to be a full spectrum IO Range comprising: operational security, computer network operations, electronic warfare, psychological operations, and military deception. This environment enables the COCOM’s warfighters to visualize non-kinetic weapons effects, understand the intricate and interactive effects generated by kinetic and non-kinetic weapons and achieve the same level of confidence and expertise in employing IO weapons as they have with kinetic weapons.</p> <p>Note: Funds allocated for IO Range development were transferred from PE 0603757D8Z in FY08 to support USJFCOM, the Lead</p>			

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Agent for the IO Range.

B. Accomplishments/Planned Program

	FY 2008	FY 2009	FY 2010
Accomplishment/ Effort/Subtotal Cost	10.339	10.848	11.162
RDT&E Articles Quantity	N/A	N/A	N/A

FY 2008 Accomplishments:

- Expanded IOR capabilities to support Computer Network Operations (CNO), Electronic Warfare (EW), Psychological Operations (PSYOP), Deception, and integrated Computer Network Attack (CNA)/Computer Network Defense (CND)
- 29 IO Range nodes in place and operational
Processes in place to facilitate ease of use of IOR in accordance with all security policies and procedures
- Approval to operate in place up to Top Secret, Sensitive Compartmented Information (TS SCI) /Special Access Required (SAR) in accordance with Director of Central Intelligence Directives (DCID) and Joint Air Force, Army Navy (JAFAN) at Protection Level 3 (PL3)
- Standing Joint Chiefs of Staff (JCS) Exercise Order (EXORD) signed for exercising and training with CNO capabilities
- IO Range Classification Guidance published
- Range available for support to CNO (CNA, CNE,CND), EW, Deception, and other related events
 - 70 current and numerous emerging requirements (FY08, FY09)
 - Requirements process and execution strategy in place
- Active support/integration of Joint Information Operations Warfare Command (JIOWC)/Joint Electronic Warfare Command (JEW) Red Team provided targets and capabilities (wireless and telephony systems)
- Support to EW gap analyses based on results of U.S. Pacific Command (PACOM) Ops Analysis and U.S. Strategic Command (STRATCOM) EW Capability Based Analysis (CBA)
 - Increased EW foundational capability on IO Range (open air, chambers, live/virtual/constructive)
 - Concept of dedicated transportable node focused on EW events (for use at unclassified locations such as Academia and/or Industry)
 - IOR provides a live, virtual, and constructive environment to improve EW training and EW materiel solutions as part of the Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) process
- Integrate coalition partners with a persistent connection

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- Develop improved instrumentation and visualization for IO capabilities
- Develop a Cross Domain Security Solution (CDSS) for processing information at multiple levels of security

FY 2009 Plans:

- Increase EW foundational capability on IO Range (open air, chambers, live/virtual/constructive)
- Explore concept of dedicated TSDP focused on EW events (for use at UNCLASS locations such as Academia and/or Industry)
- Potentially provide a live, virtual, and constructive environment to improve EW training and EW materiel solutions as part of the DOTMLPF process
- Continue the implementation of IO capabilities at the Range sites. This continuing effort supports progress toward reaching full capability in which more than 50 persistent IO Range sites will be connected and integrated for IO Range use.

FY 2010 Plans:

- Develop, test and evaluate IO Range concepts during events based on a list of prioritized requirements and available funding.
- Development toward full spectrum IO will continue to evolve with the addition of a CNO (CNA, CNE, CND), EW, Deception, and other related targets.
- Continue the implementation of IO capabilities at the Range sites. This continuing effort supports progress toward reaching full capability in which more than 70 persistent IO Range sites will be connected and integrated for IO Range use.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: Northrop Grumman, Booz-Allen Hamilton

Exhibit R-2a, RDT&E Project Justification			May 2009
Appropriation/Budget Activity RDT&E,DW BA 6			Project Name and Number: VisION
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
VisION	14.006	14.457	14.742
RDT&E Articles Quantity	N/A	N/A	N/A
A. Mission Description and Budget Item Justification:			
<p>National Military Strategy stresses the importance of integrating Information Operations (IO) capabilities for the success of Joint Operations and Decision Superiority. “Assuring information systems in the face of attack and conducting effective Information Operations” was one of the six critical operational goals in DoD’s transformation efforts (2001 Quadrennial Defense Review). In a memo signed 15 Nov 2006, the Deputy Secretary of Defense designated Commander USJFCOM the DoD Lead Component for the development, integration and sustainment of as the department's primary IO mission planning and assessment capability. In FY-08, USD(I) directed the merger of IOPC-J with the Joint Integrative Analysis and Planning Capability (JIAPC) program. The combined analysis, planning, and assessment program was named the Virtual Integrated Support for the Information Operations Environment (VisION). The first VisION Senior Leader Team meeting occurred in February 2008 followed by the first Joint Integrated Product Team meeting in June 2008.</p> <p>Virtual Integrated Support for the Information Operations eNvironment (VisION) is the developmental DoD IO Planning and analysis system, which will integrate, and synchronize IO analysis, planning, execution and assessment. VisION will support operations at multiple security levels, including coalition operations, across all Services and communities. Additionally, it will reduce duplication of effort, minimize training, speed up processes, and ensure unity of efforts throughout the DoD.</p>			
B. Accomplishments/Planned Program			
	FY 2008	FY 2009	FY 2010
Accomplishment/ Effort/Subtotal Cost	14.006	14.457	14.742
RDT&E Articles Quantity	N/A	N/A	N/A
FY 2008 Accomplishments:			

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- Merged JIAPC and IOPC-J into one program (called VisION).
- Initiated development of closed Research and Development network on the IO Range to further refine VisION utility and facilitate rapid development of new/improved capabilities.
- Developed VisION baseline capability with initial IO analysis and assessment capabilities.
- Supported USEUCOM during exercise Austere Challenge. EUCOM will serve as developmental partner in spiral development of VisION capabilities to ensure warfighter utility.
- Created Integrative Analysis (InA) methodologies and processes to provide requested input to the planning process.
- Established initial InA community of interest to bring intelligence information and tools from existing organizations together in collaborative forum. This will provide additional awareness of processes/capabilities in other organizations and, therefore, reduce duplicative efforts.

FY 2009 Plans:

- Integrate and synchronize planning, analysis, execution and assessment capabilities into VisION in support of validated COCOM/Service/Agency requirements.
- Test and perform limited fielding of technical demonstration version of VisION capability (IOPC-X). IOPC-X is the risk reduction effort designed to transform from the baseline client-server based system to a web-based system. The web-based system will reduce deployment and sustainment costs while allowing more rapid improvements/additions to VisION capabilities.
- Apply existing net enabled architectures to enhance IO planning, analysis, execution and assessment.
- Continue to develop integrative analysis methodology, with USPACOM and other organizations, and integrate with IO planning and assessment processes and capabilities.
- Continue expansion/maintenance of InA community of interest.

FY 2010 Plans:

- Achieve initial operational capability (IOC).
- Initiate fielding of VisION to COCOMs/Services/Agencies.
- Continue integration/development of planning, analysis, execution and assessment capabilities into VisION to meet emergent COCOMs/Services/Agencies requirements.
- Integrate integrative analysis methodology and capabilities into VisION environment..
- Continue expansion/maintenance of InA community of interest.

C. Other Program Funding Summary: N/A

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D. Acquisition Strategy: The VisION risk reduction technology demonstration will be extended in duration and expanded in scope to meet the requirements of the risk reduction technology demonstration. This short-term approach will be in addition to the formal acquisition process to develop VisION initial and full operational capability. This will include a short “bridging contract” to provide IWPC 4.2 sustainment until VisION baseline capability is ready. To aid in the VisION development, USEUCOM will serve as a developmental partner with USJFCOM in support of the VisION program. This relationship will ensure constant operator input and assessment and facilitate eventual testing efforts. In FY08, VisION initiated support to USPACOM to advance the development of integrative analysis processes and procedures. This effort is expected to continue throughout FY09 and will ensure warfighter validation of VisION’s new capabilities.

Concurrently, the IO JMO will initiate the formal acquisition process to mature and harden the baseline capability for deployment of the Initial Operational Capability in FY10 and Full Operational Capability in FY12. The VisION Capabilities Development Document (CDD) has been endorsed by the Services and the Command and Control Functional Capabilities Board and is scheduled for approval by the Command and Control Joint Capabilities Board in December 2008. Milestone B decision is expected in 2Q FY09.

E. Major Performers: N/A

Exhibit R-2a, RDT&E Project Justification			May 2009
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: Enhanced Simulation for Information Operations Capabilities	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
Enhanced Simulation for Information Operations Capabilities (Congressional add)	5.921	5.096	0
RDT&E Articles Quantity	N/A	N/A	N/A
A. Mission Description and Budget Item Justification:			
<p>Enhanced Simulation for IO Capabilities is a Congressional add providing a software architecture that can bring network management to the Deputy Secretary of Defense Chartered Information Operations Range and VisION initiatives. The IO Range and VisION programs require the transfer of large amounts of data to accomplish their mission and must mitigate or overcome latency and bandwidth limitation inherent in all networks. These network limitations are especially prevalent in field operations where connectivity to networks is erratic. The DoD leadership recognizes the need to improve efficiency in utilizing non- kinetic weapons. Currently, however, the ability to create and operate the realistic operational environment required to support effective integration of these systems is limited because data transfer requirements exceed real world bandwidth limitations. The software architecture will support IO Range and VisION objectives to provide analysis, planning, rehearsal, and execution environments for US and coalition forces by enabling large-scale data transfer, and providing a central integration point with new standards, and enhancing simulation capabilities. This will save considerable time and money by eliminating rewrites of existing simulations and filtering of critical data thus providing a mission critical solution that is needed by DoD now.</p>			
B. Accomplishments/Planned Program			
	FY 2008	FY 2009	FY 2010
Accomplishment/ Effort/Subtotal Cost	5.921	5.096	0
RDT&E Articles Quantity	N/A	N/A	N/A
<p>FY 2008 Accomplishments: Purchased WARP appliances, enterprise software licenses and engineering support for integration of the WARP technology into all VisION and IOR network sites.</p> <p>FY 2009 Plans:</p>			

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- Enhance simulation capabilities on the IO Range.
- Deploy, test, and integrate WARP enterprise software licenses and hardware to fully implement WARP across the IO Range network enterprise.
- Obtain formal approval to install WARP across the Range enterprise as part of the IO Range accredited baseline configuration.

FY 2010 Plans: N/A

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: Circadence, Inc.

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA # 6			R-1 Item Nomenclature: IT Rapid Acquisition/0303169D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	5.315	5.225	4.667	

A. Mission Description and Budget Item Justification:

The Department must rapidly transform its processes in order to better support the agile warfighter. This PE is dedicated to Rapid Acquisition Incentives – Net Centricity (RAI-NC) which serve DoD by providing RDT&E proof-of-concept early implementation of key initiatives targeted at advancing and moving the Mission Areas of DoD towards Net Centricity. For example, a coherent and timely transition across DoD Enterprise networks and infrastructure to the next generation of the Internet Protocol, IP version 6 (IPv6) is critical to leveraging the power of information by the business and warfighting mission areas through net-centric operations/warfare. The PE permits accelerating domain support processes thru rapid proof of concept development and early implementation.

RAI-NC provides funding for Net Centric initiatives that directly support and facilitate the transformation of the DoD enterprise. This effort is consistent with the Department’s strategic goals to: enable net-centric operations and warfare, reduce costs; improve efficiency; increase effectiveness by improving the efficiency and effectiveness of process redesign; business systems modernization; strategic sourcing; infrastructure reductions; and optimal-sized inventories. The objective of RAI-NC is to accelerate DoD’s net centric transformation in support of the warfighter. Fully achieving net-centricity requires the ubiquity, mobility, security and performance achievable through implementation of the value added features of IPv6. The scope of Rapid Acquisition Incentives – Net Centricity encompasses defense policies, processes, people, technologies and systems that guide, perform or support aspects of warfighter support processes within the Department. Each RAI-NC initiative provides proof of concept sustainability, as well as the scalability necessary for Domain enterprise wide implementation that will allow end-to end accessibility to net-centric based decision-making information. Successful implementation will result in more reliable, accurate and timely net centric management information upon which managers can make more effective business decisions in a timely manner for the Department.

RAI-NC enables the acceleration of DoD efforts to implement network centric operational environments while providing a secure, flexible, reliable, affordable, integrated network to achieve high effectiveness in joint and combined operations. This program employs RDT&E funds to plan, develop, prototype and oversee proof of concept initiatives. Successful initiatives with supporting business cases demonstrating the achieved goals and outcomes and mission area support will be allowed to enter full deployment. This program is funded under BA-6, Management Support because it includes studies and analyses in support of R&D efforts.

Program Accomplishments and Plans:

FY 2008 Accomplishments (\$5.315 million)

While the base IPv6 standards are robust and provide rough parity with IPv4 capabilities, many of the advanced features of IPv6 needed to fully enable net-centricity were developed. A DoD-wide development, engineering, testing and evaluation effort provided an opportunity to drive DoD needs into those features and accelerate the availability of products with those needed features (e.g., quality of service, mobility, IP convergence). FY 2008 efforts will delivered significant improvements to the Domains and serve as change agents across DoD, thereby accelerating both the timeliness and quality of decision-making and information flow. RAI-NC initiatives accelerated DoD's net-centric transformation in direct support of the warfighter to include:

- Utilize COTS, IRAD, NDI, and CRADA Products
- Took advantage of exercises and demonstrations to test products
- Industry, Academia, and Government Lab participation
- Provided migration paths to warfighter systems.
- Developed IPv6 Test and Evaluation Report

FY 2009 Plans (\$5.225 million)

RAI-NC initiatives that accelerate DoD's net-centric transformation in direct support of the warfighter will continue to include:

- Continue to promote commodity-based software programmable radio technologies to rapidly respond to warfighter requirements and reducing costs.
- Continue to provide for rapid prototyping, test and demonstration of commodity-based software programmable radio solutions utilizing evolving technologies for near and long term solutions.
- Continue to focus on incorporating solutions from outside programs of records:
 - Modular software programmable radio approach enables incorporation of new offerings such as high band transceiver modules into open architecture designs
 - Encourage and provide a mechanism for test of commercial module upgrade offerings or alternative techniques to enhance capability and reduce cost
 - Foster P3I technology improvements into spirals of programs of records
 - Rapid development and demonstration of specific capabilities
 - Utilize COTS, IRAD, NDI, and CRADA Products
 - Take advantage of exercises and demonstrations to test products Industry, Academia, and Government Lab participation

- Continue to provide migration path to warfighter systems.
- Continue to support DoD transition to IPv6 and convergence of voice, video and data on IP based DoD networks by coordinated and integrated planning, policy/guidance and oversight

FY 2010 Plans (\$4.667 million)

- Monitor/evaluate implementation efforts of IPv6.
- Ensure IPv6 transition efforts are synchronized across all DoD Components by conducting program reviews and review of implementation plans.
- Incorporate into policy guidance, new direction and OMB goals regarding the management and implementation of IPv6.
- Hold compliance sessions to address common and unique issues requiring the DoD CIO's intervention to revise policy, provide additional guidance or to surface technological concerns with vendors or OMB, that are hampering execution.
- Update transition plan and policy to accommodate new guidance and technologies.
- Continue to work with DISA in providing governance and oversight of the Department's implementation of IPv6, including the review of products, identifying critical issues and making recommendations for solutions.
- Continue to provide oversight and guidance to DISA in developing and refining the NIPRNET/SIPRNET infrastructure to achieve full IPv6 capability.

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Presidents Budget	5.152	5.254	4.701
Current Presidents Budget	5.315	5.225	4.667
Total Adjustments	0.163	-0.029	-0.034
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustment	0.163	-0.029	-0.034
PBD Adjustment			

Program Change Explanation:
 FY 2008: Program adjustment.
 FY 2009: program adjustment.

FY 2010: Program adjustment.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

- Timely development and issuance of policy, guidance, processes, and technologies to build, populate, govern, operate, and protect the Network.
- Development of plans and implementation activities for net centric data and IPv6 transformation capabilities.

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009	
Appropriation/Budget Activity RDT&E Defense-Wide, BA 6		R-1 Item Nomenclature: Intelligence Support to Information Operations PE 0305193D8Z		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	9.826	17.528	20.648	
E-Space	.422	.816	.956	
Human Factors Analysis	1.700	1.784	3.661	
IO Intelligence Integration	6.720	12.943	13.706	
IO Indications and Warning	.984	1.985	2.325	
A. Mission Description and Budget Item Justification: Intelligence Support to Information Operations contains classified programs. Details are provided in the classified Congressional Justification Book.				
B. Program Change Summary: (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)				
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Previous President's Budget	9.846	17.625	20.798	
Current President's Budget	9.826	17.528	20.648	
Total Adjustments	-.020	-.097	-.150	
Congressional program reductions				
Congressional increases				
Department adjustments	-.020	-.097	-.150	
Change Summary Explanation: FY 2008: Department decrease. FY 2009: Department decrease. FY 2010: Department increase.				
C. Other Program Funding Summary: N/A				
D. Acquisition Strategy: N/A				
E. Performance Metrics: Details are provided in the classified Congressional Justification Book.				

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Exhibit R-2a, RDT&E Project Justification			Date: May 2009	
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: E-Space		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
E-Space	.422	.816	.956	
RDT&E Articles Quantity	N/A	N/A	N/A	
A. Mission Description and Budget Item Justification: Intelligence Support to Information Operations (E-Space) contains classified programs. Details are provided in the classified Congressional Justification Book.				
B. Accomplishments/Planned Program				
	FY 2008	FY 2009	FY 2010	
Accomplishment/ Effort/Subtotal Cost	.422	.816	.956	
RDT&E Articles Quantity	N/A	N/A	N/A	
<p>FY 2008 Accomplishments: Details provided in the classified Congressional Justification Book.</p> <p>FY 2009 Plans: Details provided in the classified Congressional Justification Book.</p> <p>FY 2010 Plans: Details provided in the classified Congressional Justification Book.</p> <p>C. Other Program Funding Summary: N/A</p> <p>D. Acquisition Strategy: N/A</p> <p>E. Major Performers: Details provided in the classified Congressional Justification Book.</p>				

Exhibit R-2a, RDT&E Project Justification			Date: May 2009	
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: Human Factors Analysis		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Human Factors Analysis	1.700	1.784	3.661	
RDT&E Articles Quantity	N/A	N/A	N/A	
A. Mission Description and Budget Item Justification: Intelligence Support to Information Operations (Human Factors Analysis) contains classified programs. Details are provided in the classified Congressional Justification Book.				
B. Accomplishments/Planned Program				
	FY 2008	FY 2009	FY 2010	
Accomplishment/ Effort/Subtotal Cost	1.700	1.784	3.661	
RDT&E Articles Quantity	N/A	N/A	N/A	
<p>FY 2008 Accomplishments: Details provided in the classified Congressional Justification Book.</p> <p>FY 2009 Plans: Details provided in the classified Congressional Justification Book.</p> <p>FY 2010 Plans: Details provided in the classified Congressional Justification Book.</p>				
C. Other Program Funding Summary: N/A				
D. Acquisition Strategy: N/A				
E. Major Performers: Details provided in the classified Congressional Justification Book.				

Exhibit R-2a, RDT&E Project Justification			Date: May 2009
Appropriation/Budget Activity RDT&E,DW BA 6		Project Name and Number: IO Intelligence Integration	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
IO Intelligence Integration	6.720	12.943	13.706
RDT&E Articles Quantity	N/A	N/A	N/A
A. Mission Description and Budget Item Justification: Intelligence Support to Information Operations (IO Intelligence Integration) contains classified programs. Details are provided in the classified Congressional Justification Book.			
B. Accomplishments/Planned Program			
	FY 2008	FY 2009	FY 2010
Accomplishment/ Effort/Subtotal Cost	6.720	12.943	13.706
RDT&E Articles Quantity	N/A	N/A	N/A
<p>FY 2008 Accomplishments: Details provided in the classified Congressional Justification Book.</p> <p>FY 2009 Plans: Details provided in the classified Congressional Justification Book.</p> <p>FY 2010 Plans: Details provided in the classified Congressional Justification Book.</p> <p>C. Other Program Funding Summary: N/A</p> <p>D. Acquisition Strategy: N/A</p> <p>E. Major Performers: Details provided in the classified Congressional Justification Book.</p>			

Exhibit R-2a, RDT&E Project Justification				Date: May 2009	
Appropriation/Budget Activity RDT&E,DW BA 6			Project Name and Number: Information Operations Indications and Warning		
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010		
IO Indications and Warning	.984	1.985	2.325		
RDT&E Articles Quantity	N/A	N/A	N/A		
A. Mission Description and Budget Item Justification: Intelligence Support to Information Operations (IO Indications and Warning) contains classified programs. Details are provided in the classified Congressional Justification Book.					
B. Accomplishments/Planned Program					
	FY 2008	FY 2009	FY 2010		
Accomplishment/ Effort/Subtotal Cost	.984	1.985	2.325		
RDT&E Articles Quantity	N/A	N/A	N/A		
<p>FY 2008 Accomplishments: Details provided in the classified Congressional Justification Book.</p> <p>FY 2009 Plans: Details provided in the classified Congressional Justification Book.</p> <p>FY 2010 Plans: Details provided in the classified Congressional Justification Book.</p> <p>C. Other Program Funding Summary: N/A</p> <p>D. Acquisition Strategy: N/A</p> <p>E. Major Performers: Details provided in the classified Congressional Justification Book.</p>					

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009
Appropriation/Budget Activity RDT&E Defense-Wide, BA 6		R-1 Item Nomenclature: Warfighting and Intelligence-Related Support PE 0305400D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010
Total PE Cost	.795	.826	.829
A. Mission Description and Budget Item Justification:			
<p>This program supports the alignment of policies and programs with current operational requirements, oversight and sufficiency of special access programs, conduct of various intelligence-related activities and warfighter support efforts, strategies and assessments, and alignment of cutting-edge and emerging technologies for warfighter needs.</p> <p><u>Program Accomplishments and Plans:</u></p> <p>FY 2008 Accomplishments: Mission Support \$.795</p> <p>FY 2009 Plans: Mission Support \$.826</p> <p>FY 2010 Plans: Mission Support \$.829</p>			
B. Program Change Summary:			
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous President's Budget	.820	.831	.835
Current President's Budget	.795	.826	.829
Total Adjustments	-.025	-.005	-.006
Congressional reductions			
Congressional increases			
Department Adjustments	-.002	-.005	-.006
SBIR/STTR	-.023		

Change Summary Explanation:

FY 2008: Department decrease, SBIR/STTR decrease

FY 2009: Department decrease

FY 2010: Department increase

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Classified

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA 06	PE NUMBER AND TITLE: COCOM Exercise Engagement and Training Transformation (CE2T2)							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
Total PE			34.306					
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758			19.156					
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759			1.970					
JOINT SIMULATION SYSTEMS (JSS) Project Code P761			7.310					
IRREGULAR WARFARE (IW) Project Code P764			3.700					
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769			2.170					
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760			0					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

**** This program was previously funded in Program Element 0603757D8Z and is not a new start. ****

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)

JNTC: Initially established in 2003, JNTC continues to develop and integrate Advanced Training Technologies (ATT) into a seamless Joint training

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APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA 06

PE NUMBER AND TITLE:

COCOM Exercise Engagement and Training Transformation (CE2T2)

environment. JNTC establishes the overarching Joint framework and context necessary for COCOMs and Services to achieve a Joint training environment through an integrated network of training sites and nodes. JNTC provides the common standards, architecture, and development processes required to link Joint training programs. By leveraging existing training programs or initiating specific actions, JNTC is providing credible opposing force capabilities and expanded access to assets typically unavailable to the training audience by integrating virtual or constructive representations of these capabilities. This furthers the integration of Joint training objectives into Service training events, while capturing the objective data necessary to provide a complete and accurate after action review. This program develops and enhances current and future Joint training enterprise capabilities.

TCAoA: The TCAoA effort focuses on comparing current training capabilities with training requirements in order to identify gaps in our current Joint training capability, to identify alternatives for resolution and to assess the cost and effectiveness of these alternatives. Specifically, the TCAoA focuses on: (1) developing and integrating enhancements to the existing and programmed constructive simulations, (2) pursuing selected alternative training methodologies, (3) developing an innovative acquisition prototype, (4) developing solutions to implement recommendations from the Joint Staff's comprehensive study to re-engineer Joint training and (5) developing a clear management and oversight structure to meet future Joint training requirements. These efforts provide solutions to the 35 gaps and seams in Joint and Service training requirements identified by the COCOM's in the SECDEF 2004 TCAoA study. These efforts increase warfighter Joint training capabilities with improved constructive simulations and streamlined acquisition processes, leveraging industry training methodologies and technologies to provide on-demand Joint training tailorable to COCOM requirements for Joint Task Force headquarters staffs and individuals.

JSS: This effort provides warfighters with enhanced Joint Live, Virtual, and Constructive (JLVC) based training capabilities resident in the Joint Force Trainer Toolkit (JFTT). The JFTT is a set of training enablers, and "certified systems" that are interoperable and acceptable for usage within the Joint training environment. The JFTT is a one-stop shop that enables Services, COCOMS, Agencies and Coalition partners to deliver trained, capable, and interoperable joint forces.

Irregular Warfare (IW): 85% of the casualties in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are from direct fire and improvised explosive devices in an IW environment. This research and development effort is aimed at closing training gaps at the tactical and operational level that will ensure our ground forces receive immersive pre-deployment training on par with that provided to our air, maritime, and Special Forces. The effort will research, develop and integrate technologies to enhance training for General Purpose Forces (GPF) to conduct IW operations through enhanced interagency teams, human terrain/cueing/profiling training, cultural awareness training, mixed reality training, and distributed training.

JKDDC Advanced Technologies: JKDDC's requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support

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COCOM Exercise Engagement and Training Transformation (CE2T2)

Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployed to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs cultural awareness training. JTF 'battle staffs' will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical 'go to war' tasks.

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May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE:							
RDTE, Defense Wide BA 06	COCOM Exercise Engagement and Training Transformation (CE2T2)							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
			34.300					
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758			19.150					
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759			1.970					
JOINT SIMULATION SYSTEMS (JSS) Project Code P761			7.310					
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769			2.170					
IRREGULAR WARFARE (IW) Project Code P764			3.700					
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760			0					

A. Mission Description and Budget Item Justification:

**** This program was previously funded in Program Element 0603757D8Z and is not a new start.****

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)
- Joint Combined Training Center (JCTC)

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RDTE, Defense Wide BA 06

PE NUMBER AND TITLE:
COCOM Exercise Engagement and Training Transformation (CE2T2)

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)			34.780	
Current BES/President's Budget (FY 2010)			34.300	
Total Adjustments			.480	
Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other			.480	

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
O&M PE 0901298D8Z			75.065					
Procurement, PE 0901298D8Z			16.110					

D. Acquisition Strategy: Not Applicable

E. Performance Metrics: The USJFCOM Joint Warfighting Center (JWFC) Joint Force Trainer Enterprise Resource Planning Board (JFT ERPB) established in FY07 reviews all RDT&E equities. The JFT ERPB consists of senior technical, operational, program manager, and stake holder representatives within the Joint Force Trainer Community. The board's responsibilities encompass merging and prioritizing technical training requirements. It apportions work to the RDT&E elements based on an assessment of where the work is best accomplished. The board will evaluate the efficacy of development efforts based on performance metrics and will vote on whether or not to continue the effort. This process will ensure the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, money, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
- Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

The ERPB is the strategic management forum where the outcomes of performance relative to our external customers, stakeholders, and strategic stewardship of resources are the focus of discussion. Performance against the targets will be assessed and reported monthly, briefed quarterly to the ERPB, and rolled up into the JWFC Joint Training End-of-Fiscal Year Performance Report to ensure transparency and accountability.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE COCOM Exercise Engagement and Training Transformation (CE2T2)
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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P758 Joint National Training Center (JNTC)			19.150					

A. Mission Description and Budget Item Justification: DoD directed USJFCOM to establish the JNTC Advanced Training Technology (JNTC/ATT) to develop future training concepts and capabilities. The mission is to develop robust RDT&E capabilities that integrate Live, Virtual, and Constructive (LVC) elements into a seamless Joint training environment. JNTC creates Joint warfighting conditions through a networked collection of interoperable training sites, ranges, and nodes that synthesize personnel, doctrine, and technology to deliver and achieve “Joint Context” for COCOM and Service training requirements. JNTC provides research and development (R&D) within an LVC distributed test-bed supporting the advancement of training technologies in the context of a Joint integrated battle space. The test bed operates as a continuous training R&D environment, providing the foundation for a distributed and deployable Mission Rehearsal System, integrating live Intelligence, Surveillance and Reconnaissance feeding the Common Operational Picture. These funds provide critical Joint/Coalition Service members and interagency partner’s enhanced training to allow requisite enhancements to existing training systems, capabilities, and technologies. These enhancements improve training efficiencies and provide an integrated LVC environment. This capability precludes the necessity for conducting large-scale live exercises to achieve the SECDEF’s T2 vision.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P758 Joint National Training Center (JNTC)			19.150	

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE COCOM Exercise Engagement and Training Transformation (CE2T2)
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FY 2010 Plans:

- Complete deployable spiral 3 (enable web services and distributive knowledge management) to provide an enterprise solution to enable near-real time and post event assessment of the Joint Warfighters performance. Completed design of a Special Operating Forces/Conventional force instrumentation integration capability.
- Research the integration of mixed reality trainers and virtual reality trainers into the JLVC.
- Release Joint Live Virtual Constructive Federation version 4.
- Integrate Marine constructive simulations into the Joint Trainer Toolkit by integrating the Marine Air Ground Task Force Tactical Warfare Simulation (MTWS) and the Joint Live Virtual Constructive federation.
- Integrate National level intelligence capabilities into the Joint Training Enterprise by integrating the National Security Agency’s Joint Cryptological Mission Simulation (JCMS) and the Joint Live Virtual Constructive federation.
- IAW DoD directives establish a development road map for the incorporation of Internet Protocol version 6 into the Joint Trainer Toolkit.
- Conclude development and integration of the OPFOR Command & Control (C2).
- Upgrade existing Battlefield Communications Simulation System systems procured for Air Force and Navy training programs.
- Provide Maritime Threat system development for emerging capability in the littoral and riverine environments.
- Continue Information Operations Traffic Generator operability enhancements.
- Develop improved Concealment, Countermeasures and Decoy (CCD) equipment capabilities and technologies.
- Continue development and conduct integration of CCD technologies into training events.
- Continue NextGen Multi-Spectral Threat Emitter system development. Transition these upgraded production variants into training events.
- Conclude Man Portable Air Defense System upgrade.
- Implement Service Oriented Architecture approaches for Joint training information applications and information resources that interface to the external systems, services, or data sources.
- Continue to research communication technologies that will facilitate the distribution of mixed reality training around the globe - move electrons instead of people to ensure the warfighter’s last training experience is as close to the real thing as possible.
- Continue research and development efforts to mitigate or resolve identified Joint training cross-domain information sharing issues/shortfalls/gaps.
- - move electrons instead of people to ensure the warfighter’s last training experience is as close to the real thing as possible.

Continue research and development efforts to mitigate or resolve identified Joint training cross-domain information sharing issues/shortfalls/gaps.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JNTC O&M Funding			65.600					
JNTC Procurement Funding			13.590					

Comment:

D. Acquisition Strategy:

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COCOM Exercise Engagement and Training Transformation (CE2T2)

E. Major Performers:

Recipients	City/State	Description
General Dynamics Information Technology (GDIT)	Suffolk, VA	Joint Advance Training Technology Lab (JATTL) support, Award date Feb 2004.
NAVAIR Warfare Center	China Lake, CA Pt. Mugu, CA	Instrumentation and OPFOR support
Program Executive Office Simulation, Training and Instrumentation (PEOSTRI)	Patuxent River, MD	Multiple contracts
Air Force Electronic Systems Center	Orlando, FL	OPFOR support
Missile and Space Intelligence Agency	Hanscom AFB, MA	OPFOR support
US Army CECOM	Redstone, AL	OPFOR support
National Simulation Center	Ft. Monmouth, NJ	Modeling and Simulation support
NAVAL SPACE WARFARE CENTER (SPAWAR)	Ft. Leavenworth, KS Charleston, SC	Communications support

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE COCOM Exercise Engagement and Training Transformation (CE2T2)
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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P759 Joint Training Capability Analysis of Alternatives (TCAoA)			1.970					

A. Mission Description and Budget Item Justification: Joint Force Trainer supports development capabilities in Joint simulations to eliminate training gaps identified by the COCOMs and in accordance with SECDEF's T2 objectives. In accordance with the Unified Command Plan (2006), USJFCOM JWFC leads the development and implementation of system architectures that directly support distributed Joint training requirements of the other COCOMs, Joint Task Forces, and Defense Agencies. The underlying premise of TCAoA centers on privatization of training support and development with the competitive market forces driving the development of technologies to reduce the cost of training. The creation of a JFCOM Joint Oversight Board establishes a governance process to review the effectiveness of the tools and the providers. Management of the toolkit, which is a set of capabilities, and system certified technologies that are interoperable and acceptable for usage within the Joint training environment. This Joint Force Trainer Toolkit supports Joint Exercises, Doctrine, Lessons Learned, Distributed Learning and Modeling & Simulation will be a government-led Consortium with industry and academia that ensures the tools in the toolkit comply with the requirements of the common architecture. A number of emerging technologies from Industry, Government and Academic sources that offer the greatest potential to reengineer Joint training are considered for training use. These technologies include Light Simulations, Light Federations, Story-Driven Training, Massively-Multi-player Games, Training Objective Driven Simulation, Embedded Training, and Joint Community Unique Simulations

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P759 Joint Training Capability Analysis of Alternatives (TCAoA)			1.970	

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide 06

COCOM Exercise Engagement and Training Transformation (CE2T2)

FY 2010 Plans:

- Complete innovation acquisition use case assessment and provide training capability to COCOMs.
- Enhance emerging technologies such as immersive virtual technologies, story driven training and massive-multiplayer online game technology to develop two new prototypes for Joint community unique simulations in support of TCAoA gaps.
- Enhance existing web-based, immersive technologies simulations to enable advanced problem solving, enhanced decision making, and leadership skills for the Joint, Interagency, Intergovernmental and multi-national players deployed in Global War on Terrorism.
- Develop an over-arching gaming technology strategy that is Joint training focused, yet, coordinated with Service training capability requirements and R&D plans to identify future innovative prototypes and acquisition strategies (long term Measures of Effectiveness).
- Enhance information operations by modeling computer-network attack and defense.
- Implement a psychological operations capability in the Joint, Live, Virtual, and Constructive Federation.
- Develop Service Orientated Architecture (SOA) for Joint training federation, and implement a live, virtual, and constructive capability to support COCOM and US participation in NATO events.
- Develop Net-Centric Data Strategy (NCDS) for terrain, order of battle, weather, targeting, and infrastructure, to provide faster and higher-fidelity mission rehearsals through improved interoperability and reuse.
- Deliver COCOM gaming technology and analyze the effectiveness of using Massively Multiplayer Games, Story-Driven Training, and Light Simulations/Federations for COCOM training requirements.
- Enhance small unit home station training through inoculation of cognitive, visual, audio, thermal, olfactory effects and chaos of battle in a fully immersive live virtual constructive environment.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Joint Training Capability Analysis of Alternatives (TCAoA)	0	0	1.060					

Comment:

D. Acquisition Strategy: Not Applicable

E. Major Performers:

Recipients	City/State	Description

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE		
RDTE, Defense Wide 06	COCOM Exercise Engagement and Training Transformation (CE2T2)		
Northrop Grumman/Cubic/Booz Allen Hamilton	Suffolk, Va	Immersive Learning Environment (ILES)	
Alelo Tactical Language Training LLC	Los Angeles, Ca	Virtual Cultural Awareness Trainer (VCAT)	
Program Executive Office Simulation, Training, Ranges and Instrumentation (PEO STRI)	Orlando, Fl	Program oversight for data standards, architecture and ontologies.	
General Dynamics Information Technology	Suffolk, Va	Conduct system integration and validation of development programs.	
Defense Advanced Research Projects Agency (DARPA)	Various	Develop and transition immersive technologies into Joint training programs.	

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P761 Joint Simulation System (JSS)			7.310					

A. Mission Description and Budget Item Justification:
 In accordance with Secretary of Defense tasking JSS will fund research, development, testing and integration of enhancements to Joint simulations that eliminate COCOM identified training shortfalls. USJFCOM leads the development, integration, and operation of systems and architectures that directly support distributed Joint training requirements of other COCOMs, Joint Task Forces, and Defense Agencies. To that end, JSS provides the Joint training environment with the ability to insert emerging research and development technology to enhance existing systems in Joint, Live, Virtual and Constructive (JLVC).

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide 06	PE NUMBER AND TITLE COCOM Exercise Engagement and Training Transformation (CE2T2)
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B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P761 Joint Simulation System (JSS)			7.310	

FY 2010 Plans:

- Increase US coalition training by providing technical support towards the development of an architecture for a coalition live, virtual, and constructive capability.
- Develop a logistics capability that replicates deployment, medical and maintenance operations.
- Continues to integrate Service models into a seamless “One World” Global Synthetic Training Environment.
- Develop one simulation federation capable of joint and unified action to support the Joint Training Enterprise (includes coalition and interagency partners).
- Develop a Global Missile Defense simulation capability.
- Develop enhancements to constructive simulation models to support integration with virtual simulators and live instrumented forces.

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015

Comment:

D. Acquisition Strategy: Not Applicable

E. Major Performers:

Recipients	City/State	Description
Lawrence Livermore	Suffolk, VA	Joint Conflict and Tactical Simulation (JCATS)
Northrop Grumman	Suffolk, VA	Joint Support Team/Joint Software Support Facility (JSSF) Contract Support
Northrop Grumman	Orlando, FL	Joint Support Team/Joint Development Integration Facility
Rolands & Associates	Monterey, CA	(JDIF) Contract Support Joint Theater Level Simulation (JTLS)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P764 Irregular Warfare (IW)			3.700					

A. Mission Description and Budget Item Justification:

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PE NUMBER AND TITLE

RDTE, Defense Wide 06

COCOM Exercise Engagement and Training Transformation (CE2T2)

There is an immediate and critical need to develop immersive training solutions for small combat units to conduct Irregular Warfare (IW) operations in complex urban and restrictive terrain environments. The U.S. military's dominance in traditional modes of combat has pushed its adversaries toward irregular and asymmetric tactics. Moreover, the threat environment is becoming increasingly complex due to mega-urbanization, the presence of large numbers of noncombatants in any military action, and the evolving dynamics of the information environment. Meeting the challenges of the current and future IW environment requires more tactically-enhanced small combat units. Hence, the Department of Defense must prepare small combat unit leaders/leader teams to make tactical and ethical decisions that carry significant strategic implications. Additionally, leaders and staffs at all levels must understand their role in supporting this type of fight: one that can move from non-kinetic to kinetic and back in seconds, and one where the people are the battlefield and not just collateral actors. Accordingly, DoD must specifically train and broadly educate its joint forces to understand cultures and populations, to thrive in chaotic environments, to recognize and respond creatively to dynamic and demanding situations, and to operate with coalition, interagency, and host nation partners as the norm and not the exception. To accomplish IW training objectives, the Department requires training facilities that fully immerse the lower-level units in a live, virtual, and constructive training environment that replicates as closely as possible the conditions of today's and tomorrow's battlefield. These training facilities must allow the unit to utilize the full range of assets that will be available to them in actual missions including their individual equipment, individual and crew-served weapons, command and control systems, navigation systems, and target location/designation systems. It will link joint enablers such as Intelligence, Surveillance & Reconnaissance (ISR) and joint fires from many different locations across the joint force, as well as link training units' company, battalion, and regiment/brigade, which may also be conducting immersion training simultaneously. The need is to identify those common training needs and solutions that require a Joint approach across the Services. The strategy will be to leverage and integrate the existing and emerging Coalition, Inter-agency, Service and COCOM capabilities that can address the needs of the warfighter to train in an IW environment.

B. Accomplishments/Planned Program:

Accomplishments/Planned Program Title:

P764 Irregular Warfare

<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
		3.700	

FY 2010 Plans:

- Conduct analysis to determine the IW training requirements and identify shortfalls / gaps in meeting those requirements.
- Determine best practices and identify opportunities for leveraging existing training programs.
- Develop overarching framework and concept of operations for conducting IW training.
- Develop proof of concept IW training systems and deliver initial enhancements to existing Service programs.
- Integrate Service training programs to conduct distributed Joint training.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
IW O&M Funding			2.625					
IW Procurement Funding			1.190					

Comment:

D. Acquisition Strategy: Not Applicable

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PE NUMBER AND TITLE
COCOM Exercise Engagement and Training Transformation (CE2T2)

E. Major Performers: TBD

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P769 Joint Knowledge Development & Distribution Capability (JKDDC)			2.170					

A. Mission Description and Budget Item Justification: The Departments requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services are developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployment to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs (cultural awareness training). JTF 'battle staffs' will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical 'go to war' tasks.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P769 Joint Knowledge Development & Distribution Capability (JKDDC)			2.170	

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APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

RDTE, Defense Wide 06

COCOM Exercise Engagement and Training Transformation (CE2T2)

FY 2010 Plans:

- Will develop Virtual Cultural Awareness Training (VCAT) version 2 web-based game, originally developed with JFCOM Training Capability Analysis of Alternatives RDT&E funding in FY08. Version 2 of this web-based game will enhance joint warrior provided recommendations from version 1, expand the number of training audience areas of responsibility (AOR) environment to two, expand the operational mission sets to four, and expand the cultural scenarios to two, while simultaneously demonstrating an improved capability to deliver training via an innovative training technique. The training readiness and tactical proficiency of thousands of individual augmentees deploying to Central Command AOR will be improved via this JKO provided training enabling toolset.
- Operationalize training stimulation by developing Immersive Learning Environments (ILES) version 2 of the ILES “battle staff”, a small group training capability focused on improving the training readiness of individuals and small joint headquarters staffs. Version 1 prototype was developed with JFCOM Training Capability Analysis of Alternatives RDT&E funding in FY08. Version 2 will enhance joint warrior provided recommendations from version 1, and target development of three additional -ILES use cases for representative Joint Task Force (JTF) staffs, all designed to complement existing Combatant Command mission rehearsal exercises in preparation for deployment to combat theaters of operation. Thousands of joint, interagency, intergovernmental and multinational participants will be better trained as individuals and collectively as small teams prior to and during deployment in hostile environments.

Will provide direct customized instruction or feedback through Intelligent Tutor/Avatars Advanced Technologies software embedded in learning stimulation to students without the intervention of human beings in a web-based training course. Intent is to collaboratively enhance ten JKO web-based training courses with the Advanced Distributed Learning Co-Lab (ADL Co-Lab) by creating instantiations of adaptable intelligent tutor enabled courses delivered by JKO. Learning return on investment is significant as published academic research states that learning retention, effectiveness and efficiency can increase by as much as 80% via intelligent tutor/avatar embedded courseware.

C. Other Program Funding Summary:	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JKDDC O&M Funding			6.840					
JKDDC Procurement Funding			.270					

Comment:

D. Acquisition Strategy: Not Applicable

E. Major Performers:

Recipients	City/State	Description
Northrop Grumman	Suffolk, VA	Immersive Learning Environment (ILES)
Cubic	Suffolk, VA	Immersive Learning Environment (ILES)
Concurrent Technologies Companies	Suffolk, VA & Johnstown, PA	Immersive Learning Environment (ILES)
Alelo Tactical Language Training, LLC	Los Angeles, CA	Virtual Cultural Awareness Trainer (VCAT)

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Booz Allen Hamilton
Suffolk, VA
Immersive Learning Environment (ILES)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P760 Joint Combined Training Center (JCTC)			0					

A. Mission Description and Budget Item Justification: Supports USPACOM execution of SECDEF initiative with Australian Defence Forces to strengthen bilateral cooperation by enhancing the Joint Combined Training Capability (JCTC). Provides for design and implementation of prototype solutions for US-Australian forces to train at instrumented Force-on-Force, Joint Fires, and Electronic Warfare ranges in Australia that will be fully interoperable with and extend the capabilities of USJFCOM's Joint National Training Capability.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P760 JCTC			0	

FY 2010 Plans: Not applicable (funded in FY09 only).

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COCOM Exercise Engagement and Training Transformation (CE2T2)

<u>C. Other Program Funding Summary:</u>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JCTC O&M Funding			0					

Comment:

D. Acquisition Strategy:

E. Major Performers:

Recipients

Contractors (TBD)

City/State

Hawaii and Australia

Description

Seven (7) Contractor Manyear Equivalents (CME) performing technical studies, site surveys, and prototype designs for training, exercise, and related telecommunications solutions.

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OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7	PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability								
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate						
P818	52.214	49.100	46.214						

A. Mission Description and Budget Item Justification:

The Unified Command Plan 2004 assigned USJFCOM with the mission as the Joint Force Integrator for interoperability and integration of future and fielded capabilities critical to Joint, Multi-National, and Interagency warfighting operations. In addition, Management Initiative Decision (MID) 912 signed by the Deputy Secretary of Defense (DEPSECDEF) 7 January 2003 expanded the USJFCOM JI&I role to increase operational through tactical level joint integration of the following capabilities: Common Operational and Tactical Pictures; Combat Identification; Situational Awareness; Adaptive Mission Planning and Rehearsal; Interoperability among Service/Agency intelligence systems; Interoperable Joint Fires, Maneuver, and Intelligence; and Integrated Joint Battle Management Command and Control. In support of these missions, the outcome of USJFCOM JI&I program is to:

- identify, assess and develop mission capable solutions for COCOM interoperability and integration capability shortfalls;
- provide Combatant Commanders with interoperable combat identification and situational awareness capabilities among United States Forces, Interagencies, and Allied and Coalition Forces in support of the Global War on Terrorism operations;
- develop joint requirements supporting specific joint missions identified in MID 912 (Joint Close Air Support, Joint Fires, etc.);
- develop joint integrated architectures that guide service capability mapping to achieve joint interoperability; and,
- establish joint data standards and cross domain solutions to facilitate future system interoperability and integration.

The Quadrennial Defense Review (QDR) and follow-on Strategic Planning Guidance emphasized the need to continue building upon the Department's capability-based planning and management initiatives. To promote this shift and better integrate joint capability development across the Department's requirements, acquisition and resource allocation processes, the Deputy Secretary of Defense (DSD) appointed the CDRUSJFCOM as the designated Command and Control (C2) Capability Portfolio Manager (CPM). The C2 CPM has appointed the USJFCOM, J8 as the Command's Joint Capability Developer (JCD), charged with responsibility for day-to-day execution of CPM roles and responsibilities. The outcome of the JCD as the working management arm of the JC2 CPM is to develop courses of action to resource, acquire, and develop C2 related Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities (DOTMLPF) capabilities in conjunction and coordination with the Combatant Commanders, Services and Agencies.

The primary outputs include:

- Coordinated, synchronized and integrated development and delivery of C2 capabilities to address Warfighting capability area gaps and shortfalls, and
- Provide systems engineering and data strategy expertise and analysis (C2 Communities of Interest (COIs) and appropriate architectures) on C2 portfolio capabilities development.

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7	PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability
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<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	53.425	49.371	48.108	
Current BES/President's Budget (FY 2010)	52.214	49.100	46.214	
Total Adjustments	-1.211	-0.271	-1.894	
Congressional Program Reductions				
Congressional Rescissions		-0.271		
Congressional Increases				
Reprogrammings	-0.275			
SBIR/STTR Transfer	-0.838			
Other	-0.098		-1.894	

FY 2010/2011: Change reflects executive programmatic decision.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics:

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
08						

Comment:

Performance of Joint Integration and Interoperable systems is measured by successful delivery of systems solutions to Combatant Commands by required delivery dates.

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7		PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability				PROJECT P818	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P818 Joint Integration and Interoperability	52.214	49.100	46.214				

A. Mission Description and Budget Item Justification:

The Unified Command Plan 2004 assigned US Joint Forces Command (USJFCOM) with the mission as the Joint Force Integrator for interoperability and integration of future and fielded capabilities critical to Joint, Multi-National, and Interagency warfighting operations. Management Initiative Decision (MID) 912 signed by the Deputy Secretary of Defense (DEPSECDEF) 7 January 2003 expanded the USJFCOM role to pursue, within its authorities in the military needs and operations domain, integration of key joint military capabilities at operational through tactical levels. In consonance with these assigned missions, the Joint Integration and Interoperability Program (JI&I) funds USJFCOM efforts to identify critical characteristics of joint military capabilities and synchronize Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) capability elements into a coherent package for employment by joint commanders.

The JI&I Program provides resources for a wide spectrum of efforts to define, refine, and deploy integrated joint capabilities. JI&I-funded endeavors aim to improve US and coalition capabilities to conduct coordinated operations. Necessarily, JI&I-funded projects most frequently address Command & Control (C2) and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) - the capstone capabilities for integrating disparate elements of military force for joint and coalition operations. The JI&I Program supports tasks and projects associated with USJFCOM's role as co-lead (with ASD Networks Integration & Interoperability) of the C2 Capability Portfolio including coordination of C2 operational architectures, strategies, and policies. Likewise, JI&I partially funds integration activities associated with the C2 Configuration Integration Board (C2CIB), a senior council co-led by USJFCOM, US Strategic Command (USSTRATCOM) and ASD(NII). The C2CIB integrates oversight of C2 Configuration Portfolio Management (CPM) and the Netcentric CPM.

With USJFCOM as executive agent, the JI&I Program delivers outcomes conforming to joint integration missions.

- In concert with the separately funded Joint Systems Integration Command (JSIC), JI&I resources investigate joint C2/C4ISR shortfalls and ascertain characteristics of DOTMLPF remedies to meet mission requirements. The remedies are then pursued through partnerships with Component force development authorities and acquisition sponsors;
- Consistent with USJFCOM's role as operational sponsor for joint C2, JI&I underwrites Joint Combat Capability Developer (JCCD) activities compiling operational requirements for C2/C4ISR capability development and integrated testing;
- Delivers assessment and recommendations for improvement of interoperable Combat Identification (CID) and Situational Awareness (SA) capabilities among United States forces, interagency organizations, and allied/coalition forces;
- Establishes joint data standards and cross domain solutions to facilitate future system interoperability and integration.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Command and Control (JC2) Capability Portfolio Manager (CPM)	12.100	12.782	17.382	

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0607828D8Z - Joint Integration and Interoperability

P818

Primary OUTCOME (objective) for this effort is to establish an interoperable Command and Control (C2) environment that creates C2 capabilities that are "born interoperable" not "made interoperable". According to the QDR, the key role of interoperability is to improve warfighting capability and effectiveness. Building upon foundational work accomplished by the Joint Battle Management Command and Control (JBMC2) Program in FY06-07, the CPM has evolved to execute and fulfill that key role through a unique partnership among the joint warfighting, engineering, policy, acquisition and budget communities to work together in the assessment and resolution of joint operational capability and interoperability gaps. For example, the CPM working with this unique community assessed and delivered a number of warfighting capability enhancement recommendations across the DOTMLPF-P solution spectrum that were acted upon in the FY09-13 Integrated Program/Budget Review cycle; significantly closing many long-standing joint capability gaps in the areas of: Net-Enabled Command Capability, Integrated Joint Fires and Blue Force Tracking, Deployable C2, Machine Foreign Language Translation, Data Link architectures to manage net-enabled weapon systems, and Joint Collaborative Information Environment.

In accordance with QDR 2006 direction and DSD designation of CDRUSJFCOM as the Department's Command and Control (C2) Capability Portfolio Manager (CPM), JBMC2 was assimilated into the C2 Portfolio in FY 2007. The initial JBMC2 Joint Mission Thread - Joint Close Air Support (JCAS) was completed and brought to maturity the proposed solution products initiated through static and technical assessments. The successfully proven methodology used to assess the Joint Close Air Support Mission Thread remains a useful construct for the CPM in assessing other C2 programs/systems, data strategy, architectures and their linkage from Joint Capability Area(s) to Mission Tasks to Functions, to determine which functions/systems/applications within the C2 portfolio should be continued, converged or eliminated to improve warfighter capability and interoperability.

These processes and relationships in the Joint Capability Area (JCA) of C2 will be leveraged by the C2 CPM and are instrumental in successfully accomplishing the objectives of portfolio management; balanced, optimized mix of portfolio capabilities given risk and fiscal realities.

The Joint Battle Management Command and Control (JBMC2) program and processes, now part of the C2 CPM portfolio, have and will continue to produce the following products: capability/interoperability requirements, e.g., turning concept/capability documentation into enforceable technical requirements the Services and/or Agencies like DISA can design and build to; validated system of system architectures; operational assessments and proof of concept demonstrations for Joint solution sets.

The primary outputs and efficiencies to be realized as part of an overall C2 CPM approach: 1) Improved, integrated, interoperable, and networked joint force; 2) Reduction in duplicative C2 systems/programs across the DoD portfolio; 3) Improved portfolio decisions and recommendations regarding investment strategies and development efforts; 4) Associated benefits to warfighter efficiency and effectiveness:

- Reduced fratricide, increased availability of close air support for troops under fire, more effective coordination of air assets, increased weapon accuracy and time sensitive targeting;
- Common shared situational awareness;
- Coherent, coordinated operations, distributed and dispersed, including forced entry into anti-access or area-denial environments;
- Information superiority enabling more agile, more lethal, and survivable joint operations;
- Real-time offensive and defensive fires while minimizing fratricide;
- Transition from legacy, platform-centric systems to a net-centric environment focused on plug-and-play interoperability and application-independent data flow.

FY 2008 Accomplishments:

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The C2 CPM orchestrated a Focused Integration Team effort in an open and transparent process with full COCOM/Service/Agency and Joint Staff stakeholder engagement and delivered a fiscally balanced program change proposal packet for the Department's P/BR 09-13 cycle consideration, which resulted in the movement of \$600M and a number of policy related directives across the DOTMLPF-P spectrum to enhance joint warfighting capabilities across the portfolio. In early FY 2008, as the Program Decision Memorandums were published for the P/BR 09-13 cycle, the C2 CPM began working the capability analyses to inform the development and build for POM 2010-2015. This analysis included technical and operational assessments in the mission areas of: Combat ID and Blue-Force Tracking, Adaptive Planning, Deployable C2, Collaborative Information Environment, Data Strategy, and Joint Task Force Headquarters (JTFHQ) manning and equipping issues. The output of this effort resulted in C2 CPM POM 10 Recommendations issued by OSD, PA&E to the Components for their consideration in developing their POM 10 plans and programs. This analytic effort and collaborative teaming will continue throughout the Program/Budget Review FY2010-2015 cycle to develop the best possible mix of C2 capabilities within the portfolio given risk and resource constraints.

In concert with the POM 2010-2015 effort, the C2 CPM is currently engaged in the development of the C2 Capability Mix Study directed in the Guidance for Development of the Force (GDF) and the development of a DoD C2 Roadmap directed in DoDD 5100.30 to guide the migration of legacy systems and enable the Department's transition to a net-enabled, service oriented architecture environment. Additionally, the C2 CPM will continue necessary foundational work required to document and baseline the DoD C2 portfolio regarding systems mapping, architecture, requirements, data standards, and associated resources to inform current and future (POM 12) budget and investment recommendations.

FY 2009 Planned Output:

Continued refinement of the analytic C2 baseline, methodology and portfolio management information to better identify and analyze current and future C2 capabilities in comparison to the POM 10 baseline to inform: investment and trade-off recommendations for FY2011-2015 Program/Budget Review cycle; refinement of Tier II and III Joint Capability Area (JCA) attributes and metrics; C2 systems and architecture mapping; C2 policy and direction, and the DoD C2 Roadmap. Provide oversight of final approved POM 2010-2015 investment decisions.

FY 2010 Planned Output:

Follow-up and oversight of C2 Capability Mix Study and DoD C2 Roadmap recommendations and execution. C2 CPM directed studies, analyses and operational assessments for the development of C2 Portfolio capability solutions necessary to satisfy warfighting requirements and inform the Components POM 2012-2017 development in coordination with the stakeholder community; associated joint programming guidance, assessments, and oversight of execution of prior year investment decisions (FY 2011-2015).

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Blue Force Situational Awareness (JBFSAs)	8.300	3.700	1.300

Primary OUTCOME (objective) for this effort is to improve overall Blue Force Situational Awareness and to develop solutions that reduce the potential for friendly fire. Blue Force Tracking (BFT) Beyond Line-of-Sight/Non-Line-of-Sight Mission Needs Statement (BFT BLOS/NLOS MNS) (Apr 02) and subsequent Joint Requirements Oversight Council Memorandum (JROCM) 128-03, and Combatant Command Joint Urgent Operational Need statements / requirements validated the need for an outcome that produced a joint, integrated, interoperable BFT / JBFSAs air / ground / maritime operations capability. JROCM 076-05 endorsed specific approaches and actions identified by US Joint Forces Command (USJFCOM) in response to Operation Iraqi Freedom (OIF) Lessons Learned Report on preventing friendly fire incidents (fratricide prevention).

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APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7	PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability	PROJECT P818
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The primary outputs and efficiencies to be realized are: 1) Increased development and integration of common data formats and the modification of supporting software / architectures in order to allow Position Location Information (PLI)/Situational Awareness (SA) data to flow freely among U.S., NATO and coalition forces. 2) Increased capability and capacity for Data Dissemination through the establishment of net-centric integrated services that allows for seamless access to BFT / JBFSA information to prosecute operations in a bandwidth limited environment by all warfighting echelons; 3) Increased / improved Joint Air - Ground Situational Awareness Sharing capacity / capability through technical solutions, Concept of Operations, Tactics, Techniques and Procedures (TTP) delivery, along with the development, integration, testing, production, and deployment of airborne BFT / JBFSA capabilities; 4) Improved and increased force capability for Battlefield Deconfliction / Fratricide Avoidance, by increasing interoperability of systems through BFT / JBFSA data exchange standardization; and 5) Increased integration and availability of BFT and JBFSA data between tactical and logistics support forces.

FY 2008 Accomplishments:

Planned, developed, and integrated capability for the Mission Management Center (MMC) and BFT Global Network (BGN) Operations Center to dynamically exchange BFT data at the tactical level between US, NATO, and coalition forces. Incorporated BFT / JBFSA capability to improve tactical level visibility efficiencies by 50 percent by building an initial capability that integrated a NATO interface through the MMC allowing visibility of NATO/Coalition BFT systems on Force XXI Battle Command Brigade and Below (FBCB2) . Developed Extensible Markup Language (XML) schemas and message translators to permit interoperability and display of blue force tracks on the Common Operational Picture (COP)/Common Tactical Picture (CTP). Improved disadvantaged user visibility on CTP by 60 percent through improvements to BFT reporting and dissemination capability using netcentric services. Converged systems of records through assessment of key legacy systems to recommend integration or phase out - reduce number of systems by 10 percent. Fully transitioned MMC test bed capability into MMC and overarching BFT architecture, to include an initial capability to support coalition architectures. Develop and implement technical and policy solution to resolve BFT data security/protection issues within the joint/coalition force.

FY 2009 Planned Output:

Integrate blue force logistics information into the COP. Complete Army - Marine Corps Command and Control (C2)/Situational Awareness (SA) convergence effort at Battalion and Above level. Support development and implementation of the Army-USMC terrestrial (Enhanced Position Locating Reporting System (EPLRS) -based) interoperability solution to share Command and Control (C2)/Situational Awareness information at Brigade and Below level. Implement certified and accredited net-centric solutions to improve global BFT data dissemination.

FY 2010 Planned Output:

Conduct analysis of L-Band BFT SATCOM bandwidth availability to determine need to develop alternative SATCOM connectivity. Identify and assess Low Probability of Intercept (LPI) /Low Probability of Detection (LPD) waveform options, including integration of Global Personnel Recovery System capability to support Special Operations. Support integration of HOOK 2 and Combat Survivor Evader Locator (CSEL) radios to provide an interoperable Personnel Recovery capability.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Airborne Communications Capability	9.300	9.400	

Primary OUTCOME (objective) for this effort is to enhance Joint Force Commanders ability to exercise Operational and Tactical Command and Control. JACC was initiated in response to OEF/OIF Lessons Learned, COCOM command and control (C2) requirements, joint warfighter urgent operational needs and as a result of USJFCOM Hurricane Katrina disaster assistance.

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JACC is programmed to provide Joint Force Commanders with a deployable communications network that connects joint edge users to each other and to the Global Information Grid (GIG) using legacy radios via an airborne gateway. JACC serves as the relay and makes dissimilar data and voice radios interoperable on the ground, at sea, or in the air. The three-year project under sponsorship of USJFCOM and USSTRATCOM will leverage the capabilities developed by the US Air Force sponsored Battle Field Airborne Communications Node (BACN), Rapid Attack Information Dissemination Execution Relay/Joint Translator Forwarder (RAIDER/JxF), Joint Communications Support Element (JCSE) JACS relay technology and DUSD(AS&C) CABLE JCTD initiatives and transform them into a single "joint" capability.

The primary outputs and efficiencies to be realized are: 1) Increased interoperability between tactical data links. 2) Increased access to net-centric functionality for edge users. 3) Expansion of wideband connectivity for the joint warfighter. Objective capability efficiencies are:

- Establishing 100% connectivity to all tactical data links and voice systems that have access to JACC;
- Extending the range to 100% of all line of sight (LOS)-constrained systems within the 300 nautical miles JACC footprint
- Including 100% of battlespace nodes through networking capabilities
- Providing net-centric data storage and on-demand access to JACC users

The FY07 activities consisted of responding to the CENTCOM Joint Urgent Operational Needs (JUON) # CC-0174. The end product consists of 12 Joint Airborne Communications Systems of the version 2 variant. On 3 July 2007, the C2 Functional Capabilities Board (C2FCB) and Joint Rapid Action Cell (JRAC) validated and endorsed the CENTCOM JUON. The USJFCOM solution provides a communications relay capability that meets the initial intended JACC capability goal of fielding war fighter improved C2 capability. Closing out the remaining FY07 goals involved embedding the capability on a manned aircraft. The Joint Rapid Acquisition Cell (JRAC) directed USAF to pursue this option when it endorsed the JUON on 3 July and report on a selected platform for interim fielding to the CENTCOM AOR in response to CENTCOM JUON #CC-0174.

FY 2008 Accomplishments:

The FY08 activities continued to be driven by refinement of the CENTCOM C2 requirements defined in Joint Urgent Operational Needs (JUON) # CC-174. These refined C2 requirements were clarified in JUON CC# 292. The smaller JACS version II packages were developed, delivered, tested and accepted by the USJFCOM Joint Communications Support Element (JCSE) during the first quarter of FY08. The delivery and government acceptance testing with modifications performed on the packages was completed in March. Employment of the JACS version II packages was delayed pending certification by USAF on the C-130 or some other platform. Remaining FY08 funds were focused on continued development of the JACS capability which will result in a POD version.

FY 2009 Planned Output:

Finalize employment of the JACS version II in the CENTCOM AOR. Complete development of the JACS version III (POD Variant) and incorporate into a Service UAV Program. Requirement discussions have commenced with Army Warrior Program as the target program for transition

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Coalition Combat Identification (CCID) Advanced Concept Technology Demonstration (ACTD)	0.500	4.000	4.000

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Primary OUTCOME (objective) for this effort is to inform U.S. and coalition investment in combat identification interoperability. The Coalition Combat Identification Advanced Concept Technology Demonstration (CCID ACTD) assessed the military utility of emerging combat identification technologies in a series of operational demonstrations conducted during 2003-2007. The technologies assessed provide a cooperative and non-cooperative target identification capability enabling coalition ground forces and aircrew to identify friendly, enemy and neutral ground entities. During the course of the ACTD, international participation, with both technologies and forces, grew from an original three nation partnership to a coalition team of ten nations collaborating in the operational demonstrations, Urgent Quest (September-October 2005) and Bold Quest (September 2007). Upon conclusion of these events, the Coalition Military Utility Assessment (CMUA) was produced and presented, along with system cost estimates, to U.S. Service investment decision-makers. The Service authorities accepted the ACTD's conclusions and recommendations and are converged on implementing joint acquisition strategies for four of the ACTD's core technologies, the Battlefield Target Identification Device (BTID), Radio Based Combat Identification (RBCI), Synthetic Aperture Radar/Aided Target Recognition and the Laser Target Imaging Program (LTIP).

During May 2008, the USD AT&L proposed the extension of the ACTD through FY 2010. The outcome of the Extension of the CCID ACTD is to assess the military utility of emerging advanced combat identification capabilities. In order to achieve this outcome, the candidate technologies will be demonstrated under conditions designed to represent coalition operations. The assessment of technologies and associated Tactics, Techniques and Procedures (TTP) will consider, as required, other relevant fielded or emerging elements in the Combat Identification-Blue Force Tracking/ family of systems. These assessments will leverage metrics developed in recently developed CID requirements documents. These metrics include but are not limited to the following as assessed under conditions representative of operations (e.g. daylight, terrain, obscurants, target aspects):

The following Technologies and Programs were assessed during Bold Quest:

--Laser Target Imaging (LTI) - LTIP provides positive, day/night, timely and reliable stationary ground target detection, cueing and pilot interpreted identification at ranges compatible with advanced weapons (JDAM, JSOW).

--Synthetic Aperture Radar Aided Target Recognition (SAR/ATR) - SAR/ATR provides positive, all weather, day/night, timely and reliable stationary ground target detection, cueing and aided target recognition at ranges compatible with advanced weapons (i.e., JDAM, JSOW)

--Radio Based Combat ID/Situational Awareness (RBCI/SA) - RBCI is a software only modification to existing combat radios to provide interrogation and reply combat identification capability. During Bold --Quest, this proven technology will undergo interoperability testing with the UK Bowman Radio system.

--Radio Based Situational Awareness (RBSA) extends the RBCI capability to provide continuous situational awareness information to participating units via Battle Management System Displays.

--Reverse IFF - Reverse IFF uses the existing Mode S Air-to Air Interrogator installed on a Mirage 2000D aircraft to query transponders installed on ground vehicles.

FY 2008 Accomplishments:

Transition of the CCID ACTD Extension capabilities will be via a two-pronged approach consisting of an Extended User Evaluation (EUE) and Follow-On Development, Production and Sustainment efforts. The first prong is the FY 2008 EUE, during which the ACTD team conducts additional technical testing and TTP development for selected CCID ACTD technologies. This work, follow-on to the Bold Quest demonstration, is referred to as Bold Quest Plus and is scheduled for execution at Eglin AFB FL during 11-25 July 2008. The second prong involves the transition of the previously demonstrated NCTI technologies (SAR/ATR and LTIP) in the POM10-15 process. The transition of both NCTI technical to acquisition is being monitored via the C2 CPM process.

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FY 2009 Plan: As outlined in the USD AT &L Memo dtd May 30, 2008, Combat Identification (CID) is a key area for effective joint and coalition operations in preventing fratricide and maximizing combat effectiveness. Noting the CCID ACTD contribution to establishing positive momentum in coalition combat identification capability development, USD AT&L and CDRJFCOM will continue sponsorship of the CCID ACTD through FY10 in order to sustain collective progress and leverage the CCID ACTD's established teaming and procedures. The planning will begin immediately to be completed by December 2008 and the execution will be completed NLT December 2010. This last extension of the CCID ACTD will consider the impact of improved ground and air operational pictures on combat identification at the point of engagement. Coalition interest and commitment to these demonstrations has been very encouraging. The USJFCOM will take the lead in establishing a recurring cycle of activity that produces periodic assessments of the emerging Coalition Combat Identification capability. It is estimated that this cycle will repeat every 18-24 months, with events and products timed to inform the appropriate capability development and management processes. This approach will not be limited to the assessment of materiel solutions; rather, it will address, as necessary, the doctrinal, training and other elements of the CCID capability. Properly institutionalizing this approach on a long term basis will require synchronizing CCID capability development activities with annual budget and exercise schedules; therefore, in the nearer term (2009-2010), USJFCOM will operationally sponsor one more "Quest" cycle under auspices of the CCID ACTD, leveraging the established CCID ACTD team and management structure.

FY 2010 Planned Output: The Extended User Evaluation (EUE) and post-operation demonstration period will consist of follow-up testing, refinement of TTP's, and follow-on technology transition and sustainment efforts. Additionally, per the USD AT&L endorsed extension of the CCID ACTD, U.S. and Allied participants will begin planning toward advanced capability assessments after FY09 that are conducted outside of the JCTD/ACTD program. This approach may take one or both of two basic courses of alternatives; assessments that leverage major scheduled exercise or assessments that are built as standalone events.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Combat Capability Developer (JCCD)	7.100	7.600	7.600

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Primary OUTCOME (objective) for this effort is to identify and develop the capability needs and essential DOT_LPF and Policy attributes in support of Net-Enabled Command Capability (NECC) for use in the development of the NECC system of C2 capabilities. Strategic Planning Guidance (SPG) directed establishment of a transformation path to achieve a joint command and control capability for DoD - "Strengthening joint operations through ... improved joint command and control is an indispensable step forward in transformation." Unified Command Plan (UCP) 06 assigned USJFCOM as the Joint Force Integrator to lead the development of joint command and control doctrine, concepts, requirements and integrated architectures. Furthermore, DoD Directive 5100.30 (U), 1/5/2006, "Department of Defense (DoD) Command and Control (C2)" established USJFCOM as the advocate for joint command and control in the Department of Defense. Joint Requirements Oversight Council Memorandum (JROCM) 167-03, 22 August 2003 designated USJFCOM as operational sponsor for NECC and further delegated NECC (originally named Joint Command and Control (JC2) Capability) non-Key Performance Parameter (KPP) requirement adjustment approval authority to USJFCOM. NECC Acquisition Decision Memorandum (ADM), 07 March 2006 approved NECC program Milestone (MS) A and authorized entry into the Technology Development (TD) phase. DepSecDef Memorandum of 14 Sep 2006 directed capability portfolio management test-cases and empowered CDR USJFCOM as the C2 Capability Portfolio Manager (C2 CPM). USJFCOM J8 has been designated the Joint Capability Developer (JCD) and execution arm of the C2 CPM portfolio and C2 Capability Integration Board (C2CIB). The JCD takes direction from the CPM and the C2CIB and authority as appropriate and develops courses of action to source, acquire, and develop NECC capabilities in conjunction with the CCDRs and Services. JROCM 173-07, 16 July 2007, approved the NECC Increment I CDD and Extensions, and validated the Key Performance Parameters (KPPs). The JROCM further states that the JROC will maintain approval authority for all KPP changes, delegates approval authority oversight for changes to key system attributes (KSA) to the Joint Capabilities Board (JCB), and delegates approval authority for all non-KPP changes to USJFCOM (via the JCCD organization). The Assistant Secretary of Defense (ASD) Networks and Information Integration (NII) Terms of Reference for NECC, 26 July 2007, states that the Commander, JFCOM serves as the NECC operational sponsor and as the lead for the JCCD organization and process in conjunction with Service combat development commands, Joint Staff, and materiel developer. Finally, Program Decision Memorandum (PDM) II, 19 Nov 2007, states that the JCCD and materiel provider (DISA) in consultation with the users (CCDRs and Services) can prioritize the delivery of functionality within already provided funding for the NECC Increment 1 and furthermore that the DOT_LPF-P capability requirements will be defined by the JCCD in consultation with ASD (NII), DISA, CCDRs and Services and identified within existing Service, Joint and Agency funding and infrastructure.

FY2008 Accomplishments:

Milestone B (System Development and Demonstration) and pre-Milestone C (Production & Deployment). Capability Definition Packages (CDP) 2 thru 6 have been completed and forwarded to the materiel developers and CDPs 7, 9, 16 and 21 are currently in various stages of development - all covering the Shared Situational Awareness and Joint Planning, Readiness and Execution mission capability areas as well as intelligence support to C2. These CDPs also will include emerging requirements and changes for the GCCS Family of Systems (FoS) as capabilities transition and integration to NECC. Corresponding CDP DOTMLPF and Policy Constructs (1 thru 6) were developed and were submitted for exercise and refinement during capability developmental test and operational test to ensure delivery of holistic C2 DOTMLPF capabilities to the warfighter. As directed by the OSD Joint Analysis Team, the JCCD, Service Combat Capability Developers (SCCD) Charter was developed and staffed to the COCOMs/Services and Agencies to capture roles and responsibilities, overarching governance structure and the end-to-end doctrine, organization, training, materiel, leadership awareness, personnel, facilities and policy (DOTMLPF-P) capability development process. Developed Disconnected Operations/Dispersed C2 Operational Concept (OPSCON). Mission Capability Area Team (MCAT) completed their studies and analysis of a fully Joint approach to decomposing the GCCS FOS into "As Is" and "To Be" Capabilities. The net enabled requirements identified database (NRID) achieved IOC and is becoming the primary tool for providing capability prioritization and mid-course realignment recommendations for NECC. Migrated requirements to NRID. Conducted NRID Training Workshop to inform potential users of NRID input procedures and functionality. Developed draft CJCSM on NRID processes; focused on ensuring accurate identification of mandatory data fields. Continued NECC evaluations and assessments to provide supporting metrics for continued development of an NECC capability within the acquisition system. Collected/analyzed After Action / Lessons Learned from the Warfighter EARLY USER participant community; revised and improved the Warfighter Engagement process. Coordinated utilization / federation of NECC and JTF HQ Core architecture.

FY2009 Planned Output:

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Milestone C (Production and Deployment). JCCD continues development and mapping of requirements to additional CDPs, including emerging requirements and engineering changes for the GCCS FoS as capabilities transition and integration to NECC; NRID will achieved FOC and will continue to be managed/administrated; continue DOTMLPF and Policy Construct development and validation as part of CDP development; and interoperability demonstrations, technical evaluations and capability warfighter utility assessments. Execute JCCD, CPM (JCD) and C2 governance processes via NRID: Collect, identify, aggregate, assess, and prioritize C2 requirements across DOTMLPF-P. Continue NECC evaluations and assessments to provide supporting metrics for continued development of an NECC capability within the acquisition system. Early assessment of the pilot capabilities modules will be conducted to track and determine if there is a decrease in the number of interoperability fixes required to operationally employ the developed system. JCCD will commence interoperability effort to link NECC with the Distributed Common Ground Systems (DCGS), to be demonstrated in EMPIRE CHALLENGE 09. Develop NECC Incr I CDD Change 2 Annex to support updates in Key Performance Parameter and Key System Attributes. JCCD will commence development of Increment II Capability Development Document (CDD) or its approved equivalent. Continue to provide JCCD perspective to DoD C2 community via JCIDS document review.

FY2010 Planned Output:

Continued capability production and deployment. NECC achieves IOC in FY2010. JCCD continues development and mapping of requirements to additional CDPs, including emerging requirements and engineering changes for the GCCS FoS as capabilities transition and integration to NECC; continues management of the NRID.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Data Integration	1.090	1.120	1.968

Primary OUTCOME (objective) for this effort is an improved information management process that enhances the Joint Task Force Commander's situational awareness and decision cycle. The Joint Data Integration (JDI) operational concept, endorsed by USPACOM's fully deployable joint warfighting staff (JTF 519) and based upon OIF/OEF Lessons Learned, directly addresses the challenges of data management in the JTF HQ C2 Joint Mission Thread. The concept of JDI is to combine the data contained within intelligence, data link, ground data, and sensor networks to produce an accurate, timely, complete and unambiguous Common Tactical Picture (CTP) for JTF use and for sharing with Functional Component Commanders. This common tactical picture becomes the basis for the CJTF's input to the COCOM's Common Operational Picture (COP), which is distributed via GCCS/NECC to supported/supporting commands and higher authority.

The primary outputs and efficiencies to be realized are: 1) Improved quality of the common tactical picture in order to enhance Joint Task Force Headquarters Command and Control capabilities. 2) Increased standardization of data management tasks in future C2 systems. 3) Improved/increased automation requirements across future C2 systems. 4) Reduced commander's decision cycle and accelerated process for endgame Course of Action selection (Finish portion of the Find-Fix-Finish engagement chain), as a result of an increase in the commander's overall situational awareness.

FY 2008 Accomplishments:

Completed Joint Data Network Operations (CONOPS) for toolset development. Validated Functional Needs Analysis with warfighter input; prioritized development of DOTMLPF solutions to capability gaps identified in 2007 FAA that, if corrected, would yield the greatest return on investment as well as meet operational priorities noted in CCDR IPLs for the FY 10-15 timeframe. Provided updated data requirements for automation to Net-Enabled Command and Control Capability Production Documents. Confirmed Service acquisition plan for fielding Joint Interface Control (JICO) Support System (JSS). Initiated Interoperability Change Proposal (ICP) to transition Joint OPTASK Common Tactical Picture (CTP) Common Operational Picture (COP) message into US message transmission format. Coordinated JDI interfaces with USPACOM in order to improve the content of the COCOM's COP in Terminal Fury 08. Teamed with Navy's Center for Surface Combat Systems and Army Forces Command Joint Interoperability Division to write initial set of configuration control/filter settings/permission set TTP for network management functions. Teamed with Navy NETWARCOM/PEO IWS and USAF Global Cyberspace Integration Center to identify potential Service material solutions to data integration and candidate technologies for use as JDI toolsets in Terminal Fury 09 and Trident Warrior 09. Successfully completed a Joint Data Integration Joint Feasibility Study, establishing the foundation for a potential FY 09-11 Joint Test to integrate JDI into Service programs. Participated in development of the "EMPIRE CHALLENGE 08 ANNEX K, creating the airborne network and assisting in creation of the Ground Data Network. Supported ongoing JC2 CPM efforts for POM 10.

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FY 2009 Planned Output:
 Complete a JDI Functional Solutions Analysis (FSA). Implement the first of three phases of a JDI Joint Test, incorporating USPACOM, USSTRATCOM and USEUCOM objectives in a synthetic venues selected by operators. Develop and validate in operational scenarios TTP for CTP to common operational picture integration. Initiate a feasibility assessment of options to embed JDI training in Joint schoolhouses; provide interim JDI training in the form of Mobile Training Teams available to support COCOM/JTF operational needs upon request. In coordination with Air Combat Command and USSTRATCOM, develop courses of action for allied/coalition data sharing operations and cross domain solutions with NATO forces. Begin coordination with NORTHCOM for potential inter-Agency use of JDI capability and procedures. Apply data obtained in Terminal Fury 09 and Trident Warrior 09 to the prioritization of C2 CPM Service programs; also use technical findings to enhance the development of NECC requirements.

FY2010 Planned Output:
 Complete and staff an Initial Capability Document (ICD), based on the FY 09 FSA findings. Implement the second phase of a JDI Joint Test, with a focus on USPACOM's JTF 519 operations in a live operational environment (Valiant Shield 10). Evaluate the performance of Navy PEO IWS Multi-Source Integration capability as potential data fusion device in land based and live fleet testing during Trident Warrior 10. Evaluate the performance of USAF Air Combat Command's multi-level security and data fusion device in USTRATCOM's Data Fusion Integration Center. On request, provide interim JDI training to JTF Staff. Integrate interim JDI training with USJFCOM's Joint Deployment Training Center's GCCS COP curriculum. Initiate CTP visualization tool development incorporating scalable, operator selectable, doctrine statement controlled data management capability. Apply data obtained in Valiant Shield 10 and Trident Warrior 10 to the prioritization of C2 CPM Service programs; also use technical findings to inform the development of NECC machine to machine automation requirements.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Turnkey Command and Control C2	1.700	0.550	1.350

Primary OUTCOME (objective) for this effort is to establish a logical, repeatable methodology to assist designated Joint Task Force (JTF) Headquarters (HQ) in reducing the ad hoc nature of the joint command and control equipping portions of their forming process. The JTF Enterprise Architecture, consisting of Increment 1 (JTF HQ), Increment 2 (JTF Functional Component Commands), and Increment 3 (Multinational and Interagency) architectures provide support to the JTF Command and Control Equipping process, and serve as a key aspect for many of the architectural efforts. Focuses and refines Command and Control (C2) systems, applications, and telecommunications requirements for JTF HQ in order to increase readiness of the JTF HQ formation. To assist Allied Command Transformation (ACT) in supporting International Security Assistance Force (ISAF) by developing ISAF HQ C2IS Template and Architectures.

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JTF HQ Command and Control Equipping Process supports QDR 2006 and the Unified Command Plan 2006 task to the CDRUSJFCOM certify the readiness of assigned HQ Staffs designated to perform as a JTF HQ. The JTF HQ C2 Equipping Process provides a tailorable 6-step process that uses the JTF HQ C2 Baseline Templates and Architectures augmented by additional specialized architecture products and staff assistance visits for the JTF HQ. The JTF HQ Templates provide the JTF HQ with Joint Manning Documents (JMDs) and C2 Baseline Template and Architectures that lay out the historically required and doctrinally-based capabilities, requirements and manning, in addition to systems, applications, and network requirements, including telecommunications and VTC capabilities, for various types of JTF HQ operations. Current Templates address the range of types of military operations such as Major Combat Operations (MCO), Defense Support of Civil Authorities (DSCA), Disaster Relief and Foreign Humanitarian Assistance/Disaster Relief (FHA/DR), and Crisis Response and Limited Contingency Operations (Stability Operations), and provide a starting point for the JTF Commander's forming and planning process. USJFCOM personnel work with the designated JTF HQ to help define their unique capabilities required capabilities using the Templates as a starting point, and then analyze and compare current capabilities to determine existing shortfalls and gaps. JTF HQ C2 Equipping Process personnel works with the JTF HQ to assist them in identifying their C2 capabilities and equipping solutions and determines and recommends associated sourcing options for shortfalls. JTF HQ C2 Equipping Process personnel have created a web-enabled "Playbook" on the US SIPRNET that serves as a repository site for the JTF CDR and Staff to access the JTF HQ Templates as well as JFCOM and other selected organization and agency-produced information and products. A USJFCOM cross-directorate working group is using established processes to support sustaining the readiness phase of Commander, Second Fleet (C2F) JTF HQ Certification, the prepare and certify phases for 20th Support Command as JTF-Elimination, support USCENTCOM in their certification for USNAVCENT/5th Fleet and other selected designated Service HQs as appropriate.

FY 2008 Accomplishments:

JTF HQ C2 Equipping Process worked with C2F (JTF-South) to improve and sustain their readiness as a JTF Capable HQs and supported the designated JTF HQ (JTF - E 20TH Support Command) in their preparation and certification phases. The work included the development of the Joint Mission Essential Equipment List (JMEEL) and with the USJFCOM J1 to analyze and improve Joint Manning Document (JMD). In addition, JTF HQ C2 Equipping Process supported USCENTCOM as they prepared and certified USNAVCENT/5th Fleet as a designated JTF. The JTF HQ C2 Equipping Process products and people have also conducted staff assistance visits to the other geographic combatant commands in support their JTF HQ Certification Programs. Turnkey has worked with ACT in support of the ISAF HQs to expand the architecture views provided in 2007 to enhance their value and accuracy, assist Allied Command Transformation (ACT) in their revision of the ISAF HQ CONOPS, development of an ISAF HQ Template to serve as a baseline for the HQ, and to support the upcoming rotations. Turnkey worked with NATO to assist in the development of a NATO architecture data base similar to the JTF database in JACAE, which is the foundation for the development of the DoD JTF HQ Templates. Developed a JTF HQ Implementation Plan as a follow on to the JTF HQ CONOPS. Supported the JTF HQ Focus Area Team as part of J8's C2 Capability Portfolio Management (CPM) mission and other related efforts to include the USJFCOM J6 led task to support C2 for Cyberspace. JTF HQ Templates were refined to reflect the changes in JTF organization and the lessons learned from working with real-world JTF HQs. As part of the Templates refinement process and in support of the JFCOM J8 Architecture efforts the JTF Enterprise Architecture Increment I (JTF HQ) was also refined, as it is a primary component of the Template. Additionally, Increment II of the JTF Enterprise Architecture (Functional Component Command Headquarters, including Joint Special Operations Task Force and Joint Psychological Operations Task Force Headquarters) was completed and staffed.

FY2009 Planned Output:

JTF HQ C2 Equipping Process will support future designated JTF HQ in their preparation and certification phases to include the completion of 20th Support Command, and USCENTCOM's certification efforts. JTF HQ C2 Equipping Process will continue to support C2F as they maintain their readiness as a designated JTF for SOUTHCOM. The JTF HQ Working Group will also conduct staff assistance visits to other geographic combatant commands (e.g. CENTCOM, NORTHCOM and SOUTHCOM) in support their JTF HQ Improving Readiness Programs. Turnkey will continue to work with ACT, multi-national partners and Interagency organizations to improve their ability to be able to be integrated into a JTF HQ as fully functioning partners. JTF HQ C2 Equipping Process will continue to support The JFCOM capability portfolio manager (CPM) mission with its process and information gathered on JTF C2 Systems and other related efforts (e.g. Cyberspace and Irregular Warfare efforts). The JTF HQ will prepare, certify and sustain the readiness of JTF HQs and will work with the USJFCOM J7 to create a "one stop shop" for relevant JTF information for the JTF CDR, staff and additional users as appropriate.

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FY2010 Planned Output:
 JTF HQ C2 Equipping Process will support future designated JTF HQs in their preparation and certification phases. Turnkey will continue to support C2F, 20th Support Command, in sustaining their readiness as a designated JTF HQs. The JTF HQ Working Group process, product, and people will also conduct staff assistance visits to other geographic combatant commands (e.g. CENTCOM, NORTHCOM and SOUTHCOM) in support their JTF HQ Certification Programs. Turnkey will continue to work with ACT, multi-national partners and Interagency organizations to improve their ability to be able to be integrated into a JTF HQ as fully functioning partners.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Joint Data Strategy	1.000	1.000	1.500	

Primary OUTCOME (objective) for this effort is to ensure the Joint Warfighter has the ability to access and share critical Command and Control (C2) information. Currently, Warfighter consumers of data cannot determine what data exists for their operational use. If they are able to determine what data is available, they experience difficulty in accessing it primarily due to a lack of system or software interoperability. If they are able to access the data, they are not able to determine if the data is actually what they need, still current, or the legitimacy of its pedigree. Warfighter producers of data struggle with procedures on how to share their data with the consumers and on how to describe their data so that others understand it.

USJFCOM, J87, has been designated the lead of the C2 Portfolio Data Strategy. As the lead, JFCOM will work with COCOMs, Services, and Agencies (C/S/A) to achieve the primary outputs and efficiencies: making C2 data assets visible, accessible, understandable and interoperable by (1) Leading an effective C2 Portfolio Data Strategy Management Construct; (2) establishing a C2 Data Framework, C2 data standards, and Best Practices; and (3) supporting key data pilots, Communities of Interest and other Data Strategy implementation activities in order to increase the Joint Warfighter's timely access to critical C2 information.

The DoD Net-Centric Data Strategy: A DoD-wide effort to move from privately owned and stored data in disparate networks and within legacy systems/applications to an enterprise information environment where authorized known and authorized unanticipated users can access any information and can post their contributions for enterprise-wide access. If this initiative is not funded, the Warfighter will continue to not know what data exists for use, how to access available data, if data they accessed is what they really need, how to tell others what data they need, how to share their data with others, and how to describe their data so that others may use it.

FY 2008 Accomplishments:
 Conducted quarterly meetings of the C2 Portfolio Data Strategy Steering Committee, which provides a formal process for the C2 CPM to establish C2 data sharing priorities and standards for C2 capabilities; Led the C2 CPM POM 10 Data Focus Area Team, which developed and implemented 7 recommendations for improving C2 Portfolio data strategy implementation; Completed the C2 Data Framework Concept and Technical Guidance V1.0, a document which articulates the C2 Portfolio Data Strategy and provides implementation guidance to C2 programs and C2-related Communities of Interest; Developed a C2 Data Campaign Plan V 1.0, which articulates the objectives and milestones for developing and implementing an effective C2 Portfolio data strategy; Developed and documented the C2 Core V1.0, a comprehensive C2 data standard which will enable joint, multinational, and interagency data interoperability within C2 Portfolio capabilities; Developed the C2 Data Needs Matrix and visualization tool which identifies authoritative C2 data sources and their relationship to C2 capabilities in support of the Net-Enabled Command Capability and the C2 Portfolio; Developed a C2 data standards concept of operations and established a configuration management process for C2 Portfolio data standards and management artifacts; Co-led C2 Data Pilot Phase 3, an effort to expose C2 Data Assets and support the development and refinement of the underlying technologies supporting net-centric C2 capabilities

FY 2009 Planned Output:

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Continued leadership of the C2 Portfolio Data Strategy Steering Committee; Refinement of the C2 Data Needs Matrix and visualization tool; integration of C2 Data Needs and C2 data standards information into the Joint Command and Control Architecture and Capability Assessment Enterprise (JACAE) tool; Continued identification and refinement of COCOM data sharing needs and priorities; Further development and refinement of the C2 Core data standard and C2 Data Framework, to include piloting and testing; Management of the C2 Namespace; Support of the Force Management Implementation Project's data visibility initiative through C2 Data Pilot Phase IV; Increased involvement in multinational C2 data standards development processes to include a multinational C2 data pilot; Support to various C2 data initiatives to expose critical C2 data; Development of the data and service annex to NECC Capability Development Packages.

FY 2010 Planned Output:

Continued leadership of the C2 Portfolio Data Strategy Steering Committee; Development of tools to track C2 Authoritative Data Sources; Continued integration of C2 Data Needs and C2 data standards information into the Joint Command and Control Architecture and Capability Assessment Enterprise (JACAE) tool; Continued identification and refinement of COCOM data sharing needs and priorities; Continued development and refinement of the C2 Core data standard and C2 Data Framework; Management of the C2 Namespace; Continued involvement in multinational C2 data standards development processes; Supervise Service adherence to data related POM 10 recommendations.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Recognition of Combat Vehicles (ROC-V)	2.533	1.400	1.400	

The primary outcome for Recognition of Combat Vehicles (ROC-V) is to enhance Air-to-Ground and Maritime combat identification capabilities, thereby reducing the potential for friendly fire. ROC-V is a training aid for ground forces, aircrews and ship crews that perform combat identification (CID) by visual identification of detected entities in the operational battlespace. It standardizes realistic Combat Visual Identification (CVI) training that is critical to both combat effectiveness and fratricide prevention. The program materiel developer for ROC-V is the U.S. Army Night Vision and Electronics Sensors Directorate (NVESD), Ft. Belvoir, VA, which currently receives approximately \$1.5M per year from the Army and Marines to develop, maintain and distribute a Ground-to-Ground version of ROC-V. Resources provided in this Program Element will support the NVESD expansion of the program to facilitate the development of Air-to-Ground and Maritime versions of the training program. The funding will be used in general to expand the ROC-V training program database by adding US, Coalition, and Threat-type vehicles, maritime environment/small boat threats, and all aspect/extended range air-to-ground imagery with emphasis on concurrent development of Coalition releasable products. Additionally, the funding will allow development of a standardized air-to-ground, all aspect and range CVI training program for pilots, aircrew, Joint Terminal Attack Controllers (JTACS), and Unmanned Aerial Vehicle (UAV) operators. It will begin creation of a standardized maritime environment small boat threat CVI training program and begin the development of a deployable/portable CVI training capability. It also supports standardization efforts to incorporate these visual signatures into a Sensor Signatures Database Program for non-cooperative target identification.

Primary Outputs and Efficiencies to be demonstrated:

- 1) Expansion of data Collection / Range Support for additional combat vehicles and Navy littoral watercraft
- 2) Improved processing, integration, and design of ROC-V modules for a standardized Joint A-to-G training aid
- 3) Expansion of personnel capable of supporting data field collection
- 4) Increased collection of mid-wave (3-5 micron), long-wave (8-12 micron) and short-wave (1-2 micron) thermal images
- 5) Expansion of Thermal and Daylight Visible images by 85-100 tactical vehicles and littoral watercraft for the A-to-G CVI training aid to include 60, 45, 25, and 15 look-down slant angles at select ranges.

FY 2008 Accomplishments:

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Began development of Air-to-Ground and Maritime ROC-V training software modules. Collected 85-100 tactical vehicle and 15-20 small boat thermal and daylight visible all aspect and multi-range images in a controlled range environment. Initiated Model & Simulation development efforts to transition already collected images to 3-D models. Fielded CVI training products to the warfighter.

FY 2009 Planned Output:

Continue development and maintenance of Air-to-Ground and Maritime ROC-V training software modules. Collect 20 tactical vehicle and 15-20 small boat thermal and daylight visible images per FY in a controlled range environment. Continue Model & Simulation development efforts to transition already collected images to 3-D models. Continue fielding Air-to-Ground CVI training products to the warfighter

FY 2010 Planned Output:

Transition JFCOM developmental support to Services. Complete development and maintenance of Air-to-Ground and Maritime ROC-V training software modules. Complete Model & Simulation development efforts to transition already collected images to 3-D models. Complete fielding Air-to-Ground CVI training products to the warfighter.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
System of Systems Engineering (SoSE)	2.000	2.000	2.100	

Primary OUTCOME (objective) of this effort is to provide System-of-Systems Engineering (SoSE) support to the Joint Command and Control (JC2) Capability Portfolio Manager (CPM) and Joint Combat Capability Developer (JCCD). Leveraging architectural products, data and data relationships residing in the Joint Command and Control Architecture and Capability Assessment Enterprise (JACAE) tool (including authoritative and traceable requirement sources, technical documentation, capability issues, previous analyses and assessments), the SoSE team provides detailed system analysis and end-to-end systems engineering rigor for JC2 CPM decision-making. End-to-end interoperability engineering includes capability mapping and integration, detailed analysis and assessment of CPM issues, executable architecture design and implementation and modeling and simulation analysis.

SoSE for CPM is required by DEPSECDEF Capability Portfolio Management (CPM) MEMO date; 14 Sep 06; DOD 5000-series Directives and Instructions; Defense Acquisition Guidebook - Chapter 4.2.6., Joint Capability Developer Campaign Plan DRAFT v0.8 20 Nov 2007; and CPM Issue Findings and Recommendations. The CPM SoSE effort will follow the Office of the Secretary of Defense (Acquisition, Technology, & Logistics) (OSD AT&L) and Joint Staff core elements of SoSE as presented to Deputies Advisory Working Group (DAWG). Core elements of SoSE provide the context for the application of systems engineering to JC2 CPM processes. Through data collection and mapping efforts SoSE will translate CPM System-of-Systems (SoS) capability objectives into high level requirements and provide the CPM an understanding of the components of the CPM SoS and their relationships over time. Through detailed analysis SoSE will assess the extent to which the CPM SoS meet capability objectives; will develop, evolve, and maintain a design for the CPM SoS; and will monitor and assess potential impacts of changes on CPM SoS performance.

FY 2008 Accomplishments: Supported the Joint Personnel Recovery Agency Quick Look effort by completing a desk top analysis and made specific recommendations to support and document the requirements for the disadvantaged users. Completed executable architectures that laid out the requirements for the disadvantaged users based on a JPRA provided mission thread. The support to JPRA continues in 2009 as a broader effort.

The SoSE branch supported the JFCOM C2 CPM effort by providing systems engineering and analysis in developing an executable Joint Close Air Support (JCAS) Architecture in support of the POM-10 cycle. The SOSE branch worked the JPRA disadvantaged user effort as a POM 12 submission.

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The Strikelink A effort was successfully completed with the system flying in June 2008 and successfully demonstrating a fully digitally aided CAS mission. Detailed bit-level system-of-systems analysis in JBMC2 drove testing and assessment design and execution at a level that could not have been accomplished without the depth of analysis provided. The analysis identified cross-Service solutions that included a design to upgrade aircraft situational awareness data transfer which is independent of the Onboard Fight Program (OFP) and the radio, and therefore has the potential result of saving millions of dollars in life cycle costs and reducing fratricide risks while making the Joint Close Air Support (JCAS) process more lethal and effective.

JCAS Coordinated Implementation (CI) completed a survey of all the CAS participants and completed a charter for CI to get JROC approval leading to all CAS participants being fully interoperable by FY 2012 - 15.

The SoSE Branch has related their tactical level executable architecture to a campaign level model, Joint Analysis System (JAS).

The SoSE developed JCAS model will support the J85 led effort to develop a JCAS Joint Capability Document (JCD).

FY 2009 Planned Output:

The SoSE team will analyze C2 CPM POM-12 issues to determine analytical complexity, timelines, and resources required; refine issues and gather system(s) data for analysis; task front-end architecture, data standards, & end-state assessment and testing requirements; assess issue-identified systems against capabilities, activities, nodes, system functions and system attributes in the performance of desk top analysis; deliver desk top analysis, executable architectures, reports and objective data to JC2 CPM Issue leads, Joint Systems Integration Center, or other leads for detailed assessment and testing, and deliver implementation/execution plans. In response to needs for additional mapping depth and maturity, the team will manage mapping activity to deliver capability to identify current C2 baseline, and then analyze changes to that baseline, including system changes, system attribute changes, and more holistic changes (applying Network Centered Enterprise Services, and Network Enabled Command and Control overlays); to provide C2 CPM capability mapping and analysis products for POM issues; mature mapping for all C2 systems, and continue to build a baseline of C2 system attributes into a mapping repository .

The SOSE branch will broaden the work started in 2008 for the JPRA Quick Look and take it forward as a POM 12 submission .

The SOSE branch will continue the JCAS Coordinated Implementation effort leading to all CAS participants being fully interoperable by FY 2012 - 15.

FY 2010 Planned Output: The SoSE team will continue to support C2 CPM for POM-12 and POM 14 issues as required. The SoSE team using architectural products, data, and relationships residing in JACAE, will provide detailed analysis supporting POM 12 and 14 C2 CPM functions from managing capability mapping integration, providing executable architecture capable of support modeling and simulation, to supporting issue analysis and assessment. They will continue to provide the detailed system analysis and end-to-end capability engineering rigor for C2 CPM decision-making. Continue to support JPRA and other similar Command initiatives with systems engineering and analysis. SoSE branch will coordinate their efforts with JSIC, JTIC and JFIT to improve engineering products in support of C2 CPM.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Integrated Fires Consolidated Activities	3.200	3.329	4.214

Primary OUTCOME (objective) for this effort is the integration of Joint Fires Capabilities for US and Coalition Partners that improves combat / mission effectiveness while minimizing fratricide focus is on the following area: Joint Close Air Support (JCAS), Combat Identification (CID), Blue Force Tracking (BFT) (including Joint Blue Force Situational Awareness), Joint Fires, Fires related Joint Command and Control Capabilities, and Integrated Air and Missile Defense (IAMD).

FY 08 Accomplishments:

Executed CID-BFT Action Plan CY08-09

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- Led actions to determine/resolve Service/COCOM position location information (BFT) security policy (JROCM 122-08)
- Evaluated the operational demonstration of Patriot Missile unit in a Joint IAMD environment at WTI Event October 2007
- Monitored POM 10 plan for a synchronized Service acquisition and fielding of a Mode 5 identification friend or foe (IFF) capability, with an IOC of 2014 and FOC of 2020.
- Assessed the results of the CCID ACTD Extension (Exercise Bold Quest) to evaluate/assess the optimal mix of CID-BFT/JBFSA capabilities, with emphasis on NCTI technologies in the A-G environment that will provide the basis for investment recommendations to inform POM 10/POM12.
- Provide an assessment of the reliability and estimated life of alternative BFT communications platforms in order to reduce BFT reliance on National Technical Means through the review and utilization of existing Service, COCOM, Joint Staff, and JROC assessments.
- Established and maintained a Joint Friendly Fire Data Base of real world combat fratricide events, and conducted trend analysis.
- Evaluated emerging and promising technologies to identify high pay-off, emerging technologies for CID-BFT/JBFSA that have joint applicability and that are worthy of focused acceleration, including the Joint Sensor Signatures Database (JSSD)

Executed JCAS Action Plan

- Evaluated and monitored standardization and maintenance of Joint Terminal Attack Controller (JTAC) training throughout Department of Defense and participating Coalition countries.
- JCAS ESC continued to lead in consolidating U.S. input into the NATO standardization processes through engagement with the NATO Standardization Agency in the rewrite of NATO STANAGS.
- Worked toward achieving C2 interoperability in the JCAS mission area through establishment of a JCAS digital standard to improve warfighting capability and reduce fratricide.
 - Continued to define and evaluate the simulation capabilities required for the JCAS mission area by exploiting existing systems and new technologies; identifying JCAS tasks where simulation can be used to obtain appropriate qualifications, update currency requirements, and maintain proficiency for key JCAS personnel.
 - Pursued initiatives that will more closely integrate the services' and SOCOM's JCAS training programs and exercises at the tactical level.
 - Evaluated and monitored standardization and maintenance of Forward Air Controller (Airborne) training throughout the Department of Defense; invited Coalition countries with evolving FAC(A) programs to participate in the standardization process
 - Developed JCAS JCD (Phase 1 - SEP 08)
 - Completed Concept of Operations (CONOPS)
 - Completed Phase 1 Capabilities Based Assessment (FAA & FNA)
 - Led Integration of US & Coalition JTAC Standardization
 - Developed Allied/Coalition Joint Fires Capability
 - Published JTF Fires & Targeting Handbook
 - Delivered Weapon Data Link Network ACTD
 - Developed IAMD ICD (Phase 1 - SEP 08)
 - Completed Operational Concept.
 - Completed Phase 1 Capabilities Based Assessment (FAA & FNA)

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FY 2009 Planned Output.

Continue Execution of CID-BFT Action Plan

- Lead actions to incorporate PLI (BFT) security policy in applicable documents and instructions.
- Monitor PB09/POM 10 execution for a synchronized Service acquisition and fielding of a Mode 5 IFF capability, with an IOC of 2014 and FOC of 2020.
- Monitor and assess the results of the CCID ACTD Extension (Next Quest) to evaluate/assess the optimal mix of CID-BFT/JBFSA capabilities, with emphasis on NCTI technologies in the A-G environment that will provide an input for investment recommendations to inform POM 12.
- Provide an assessment of the reliability and estimated life of alternative BFT communications platforms in order to reduce BFT reliance on National Technical Means through the review and utilization of existing Service, COCOM, Joint Staff, and JROC assessments.
- Maintain a Joint Friendly Fire Data Base of real world combat fratricide events, and conduct trend analysis.
- Evaluate emerging and promising technologies to identify high pay-off, emerging technologies for CID-BFT/JBFSA that have joint applicability and that are worthy of focused acceleration, including the Single Card Solution for SOCOM.
- Develop CID-BFT Joint Capabilities Document (JCD) (Phase 1 of Spiral 2 (air domain) - MAY 09)
- Continue spiral development of JCD for associated domains.
- Complete Phase 1 of Spiral 2 Capabilities Based Assessment (FAA & FNA)

Continue Execution of JCAS Action Plan:

- Evaluate and monitor standardization and maintenance of Joint Terminal Attack Controller (JTAC) training throughout Department of Defense and participating Coalition countries. Expand Coalition participation both in JCAS ESC and JTAC Standardization Team.
- Finish integration of STANAG 3797.
- Work toward achieving C2 interoperability in the JCAS mission area through establishment of a JCAS digital standard to improve warfighting capability and reduce fratricide.
- Continue to define and evaluate the simulation capabilities required for the JCAS mission area by exploiting existing systems and new technologies; identifying JCAS tasks where simulation can be used to obtain appropriate qualifications, update currency requirements, and maintain proficiency for key JCAS personnel.
- Pursue initiatives that will more closely integrate the services' and SOCOM's JCAS training programs and exercises at the tactical level
- Evaluate and monitor standardization and maintenance of Forward Air Controller (Airborne) training throughout the Department of Defense; invite Coalition countries with evolving FAC(A) programs to participate in the standardization process.
- Develop JCAS JCD (Phase 2 - SEP 09)
- Complete Phase 2 Capabilities Based Assessment (FAA & FNA)

Develop Allied/Coalition Joint Fires Capability through Technical Cooperation Program, Action Group 15 leadership

Continue leading Integrated Air and Missile Defense integration efforts:

- Develop and deliver IAMD ICD (JAN09)
- Develop SIAP CDD v.2.
- Oversee BMD ITWG products in response to COCOM requirements

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Conduct analysis to support C2-CPM Integrated Fires/BFT Cell POM12 development.
 Support Joint Urban Fires Prototype (JUFP) Experiments (J9 Project Resourced).
 Support JFIIT Activities (Training/Assessment/Analysis) (JFIIT Project Resourced).
 Coordinate UAS Center of Excellence Activities w/JFCOM

Planned FY2010 Planned Output: Continue execution of JCAS and CID-BFT/JBFS Action Plans. Migrate JCAS ESC to Joint Fire Support (JFS) ESC. Develop JFS Action Plan. Expand coalition participation in the JTAC MOA and JTAC Standardization Teams. Deliver JCAS JCD, Air-Ground Phase of CID JCD and IAMD JCD.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Joint Architecture Integration and Development	3.391	2.219	3.400

Primary OUTCOME (objective) for this effort is to integrate and develop joint architectures, in direct support of Joint C2 (JC2) Capability Portfolio Management and for cross-portfolio integration and federation efforts between the Joint Capability Areas (JCAs), and the mission areas of the Global Information Grid (GIG): Warfighter Mission Areas (WMAs), Enterprise Information Environment Mission Area (EIEMA), Defense Intelligence Mission Area (DIMA), and Business Mission Area (BMA). The centerpiece of this effort is to develop and sustain a command and control (C2) capabilities mapping baseline and repository, in conjunction with a Joint Task Force (JTF) Enterprise Architecture (EA). The C2 capabilities mapping framework and the JTF EA will provide reusable data and information for objective C2 capabilities analysis and assessment to inform C2 CPM decision-making and cross-portfolio architecture driven analyses, while simultaneously improving JTF performance via more efficient and effective JTF planning, certification, and sustainment.

FY 2008 Accomplishments:

- Enriched and expanded current information and refine C2 Capability Mapping processes and procedures to accommodate capabilities under review for POM 10 and beyond. Supported C2 Functional Areas, JSIC, and other analytical and assessment entities .
- Developed the Joint Common Systems Function List (JCSFL) v1.0 as the first-ever joint architecture standard, completed its Joint Staff Action Processing (JSAP) staffing with Joint Staff J6 sponsorship, and inserted it as a requirement for C2 capability development into the revision of CJCSI 6212, Interoperability and Supportability of Information Technology and National Security Systems.
- Refined roles and responsibilities and improved the repeatable process to overlay "to be" capabilities against the "as is" JTF Enterprise Architecture and C2 CPM capability baseline.
- Expanded the Joint Architecture and Capability Assessment Enterprise (JACAE) tool and repository to accommodate 24-hour, 7-days-per-week service to 500 concurrent COCOM, Service, and Agency users.
- Deployed JACAE testing and development capability, independent of the production suite, on both the NIRPnet and SIPRnet, allowing for an unclassified Service extension as well as the ability to test vendor software updates and modify the JACAE schema, without impacting production.
- Completed a successful demonstration of the capability to publish and subscribe to JACAE information through intermediary web services, without being inside the JACAE environment - the first step to developing web-services based on the detailed, complex relationships in the extensive data sets resident in JACAE.

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- Provided "best practice" demonstrations to the DoD Architecture Framework (DoDAF) 2.0 Data and Methodology Working Groups, and hosted a DoDAF 2.0 Operational Requirements Workshop, to help ensure the next version of DoDAF provides the maximum commonality to improve joint warfighting capabilities, while allowing for the flexibility to accommodate rapid, modular capability development.
 - Developed detailed JACAE Functional Requirements Document, Standard Operating Procedures, and Configuration Management Plan to ensure rigorous enforcement of JACAE methodology and reusability of all enterprise objects, as well as the ability to horizontally trace the reuse of C2 Baseline components.
 - JACAE's successes allowed it to effectively compete from among 28 entries to win the prestigious Enterprise Architecture Achievement Organization Award is presented by the DoD, in conjunction with the Association for Enterprise Integration (AFEI), to the organization that most exemplifies the use of enterprise architecture in its transformation towards becoming a net-centric enterprise.
 - Under the cross-C/S/A Joint Architecture Integration Working Group (JAIWG) chaired by USJFCOM J89, established two sub-working groups: one for architecture analysis, examining a real-world Joint Close Air Support incident, and one for the federation of JACAE information with the Army's unclassified architecture development tool and repository, Capability Architecture Development and Integration Environment (CADIE).
 - Developed Architectures and C2 Mission Thread in support of the USJFCOM-J6 led C2 Process Cyberspace effort as directed by the Chairman of the Joint Chiefs of Staff, to examine C2 capabilities within the Cyperspace capability area.
 - Expanded and baselined Architectures and developed NATO C2 Templates for the International Security Assistance Forces (ISAF) organization in Afghanistan, allowing coalition partners to standardize their warfighting capabilities to improve efficiency and effectiveness of mission execution, while reducing C2 and communications capabilities' maintenance and training. Provided ISAF with the as is view from which they are able to make changes and have a better understanding of the impact of those changes.
- FY 2009 Planned Output:
- Refine C2 Capability Mapping Baseline and integrate processes and procedures that will be captured in a published Terms of Reference (ToR) to instantly accommodate capabilities' reviews and issue development. Develop templates for DOTMLPF Change Recommendations and other Joint Capability Integration Development System (JCIDS) documents, so that Service Program Managers and Program Executive Offices can automatically extract joint architecture, or other C2 CPM-related information, directly from JACAE.
 - Completely federate JACAE with other COCOM and Service databases, registries, and repositories, to provide for near real-time cross-portfolio analysis. Federation candidates include USTRANSCOM Corporate Resource Information Source (CRIS), the Business Enterprise Architecture (BEA repository), AT&L's Matrix Mapping Tool (MMT), Army's Capability Architecture Development and Integration Environment (CADIE), Navy's SYSCOM Architecture Development and integrated Environment (SADIE), and the Department of Defense (DoD) Information Technology Portfolio Repository (DITPR).
 - Develop, review, and baseline the JTF Enterprise Architecture's Spiral II for Increment 2 (Functional Component Command) for the Joint Forces Land Component Commander (JFLCC); Joint Forces Maritime Component Commander (JFMCC) and the Joint Forces Air Component Commander (JFACC).
 - Expand the Irregular Warfare Architecture baseline to include additional architecture development for SOF and Conventional Force integration endeavors including Cyberspace.
- FY 2010 Planned Output:
- Continue support to C2 CPM-directed studies and analyses and guide operational assessments for the development of C2 Portfolio capability solutions.
 - Provide architecture input to C2 portfolio capability planning guidance to Components for POM 2012-2016 development studies, analyses and operational assessments.
 - Continue to refine C2 Capability Mapping processes and procedures, and promulgate mapping and architecture standards, including subsequent versions of the Joint Common System Function List, which will be expanded to describe the functionality of systems within other Joint Capability Areas and capability portfolios, and will include web/net-centric service functional descriptions.

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C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Major Performers: Not applicable for this item.

OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT				
7 - Operational System Development			0607828D8Z - Joint Integration and Interoperability							P818				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Analyses	Analyses		1184	950	1-4Q	980	1-4Q	1000	1-4Q					
Subtotal:			1184	950		980		1000						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Systems Engineering Support	Systems Engineering Support MIPR	MITRE	423	586	1Q	586	1Q	600	1Q					
Systems Engineering Support	MIPR	SPAWAR, Charleston (JACC)	5400	8365										
Systems Engineering Support	MIPR	Sequoyah TMO (S2S)	3700		1Q		1Q	3700	1Q					
Systems Engineering Support	MIPR	Space & Missile Defense Battlelab, Peterson AFB (JBFSa)	2280	8300		3700		3500	1-4Q					
Systems Engineering Support	MIPR	Various (JBMC2/JMT)	4751	14325		20649		14032	1-4Q					
Systems Engineering Support	T&M	Science Application International Corp.	2557	3000	1-3Q	3000	1-3Q	3100	1-3Q					
Systems Engineering Support	CPFF	Old Dominion University Research Foundation	1200	885	1-3Q	935	1-3Q	1400	1-3Q					
Systems Engineering Support	MIPR	SPAWAR/NAVSEA (Alliance)	3640	2600		1800		1940	1-4Q					
Systems Engineering Support	MIPR	Various	12801	12603	1-4Q	13350	1-4Q	12842	1-3Q					
Subtotal:			36752	50664		44020		41114						
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Test & Evaluation Support	MIPR	Various (JAVELIN)	9600											
Test & Evaluation Support	Test & Evaluation Support	Various	5600	500		4000	1-4Q	4000	1-4Q					

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability						PROJECT P818			
Subtotal:				15200	500		4000		4000				
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date				
Travel			100	100		100	1-4Q	100	1-4Q				
		Various DoD & Internal											
Subtotal:				100	100		100		100				
Project Total Cost:				53236	52214		49100		46214				

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability	PROJECT P818
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Event Name	FY 08				FY 09				FY 10																						
	1	2	3	4	1	2	3	4	1	2	3	4																			
FY 2010 JI&I Profile	FY 2010 Project Assessments				FY 2010 JI&I Profile																										
(1) FY 2010 Project Selections									▲ FY 2010 Selections																						
FY 2010 Assessments									FY 2010 Assessments																						
Project Funding													Funding																		
Project Development																	FY 2010 Development														

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 7 - Operational System Development			PE NUMBER AND TITLE 0607828D8Z - Joint Integration and Interoperability				PROJECT P818	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>					
FY 2010 JI&I Profile		2Q - 4Q	1Q - 4Q					
FY 2010 Project Selections		4Q						
FY 2010 Assessments		2Q - 4Q						
Project Funding			1Q - 4Q					
Project Development			1Q - 4Q					

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA # 7			R-1 Item Nomenclature: Information Systems Security Program/0303140D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	15.125	13.386	13.477	
<p>A. Mission Description and Budget Item Justification: The NII Information Systems Security Program (ISSP) provides focused research, development, testing and integration of technology and technical solutions critical to the Defense Information Assurance Program (10 USC 2224) through pilot programs and technology demonstration; investment in high leverage, near-term programs that offer immediate Information Assurance (IA) benefit; federal and multi-national initiatives; and short-term studies and research critical to protecting and defending information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. These efforts focus on Computer Network Defense (CND) and the restoration of information systems by incorporating protection, detection, analysis and reaction and response capabilities; emerging cryptographic technologies; technology transition and IA research capabilities. This program is designed to meet the requirements of 10 USC 2224 (Defense Information Assurance Program), 44 USC 3544, (Federal Information Security Management Act of 2002), OMB Circular A-130, and DoD Directives 8500.1, and 0-8530.1. This program is funded under Budget activity 7, Operational System Development because it integrates technology and technical solutions to the Defense Information Assurance Program.</p> <p>FY 2008 Accomplishments: (\$15.125 million)</p> <ul style="list-style-type: none"> • \$2.400 million Congressional Add for Security for Critical Communications Networks (SCCN). This program entails the systematic network embedding of hardware monitoring units optimized for security activities and partnering with the existing network components to achieve "built-in" network security for DoD applications. • Converted eMASS into a Core Enterprise Service information assurance management tool. • Continued refinement of IA architecture, policy and IA capabilities necessary to support and “end-to-end” IA capability for the GIG – including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture. • Developed and implemented; a demonstration of standards-based binary vulnerability detection Guidebook for Systems Engineering for Systems Assurance; a strategic approach to prioritize Systems and Networks for enhanced SCRM; a baseline of practices and procedures for Supply Chain Risk Management (SCRM) across the lifecycle and the DoD SCRM; and an approach for identifying gaps. 				

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- Developed a strategic plan; for performing monitoring and oversight; and metrics for identifying and prioritizing provisions of national security agreements for monitoring and oversight; for standardizing nomenclature for describing incremental risk within CFIUS transactions.
- Developed and refined engineering-in-depth and vulnerability detection to support the DoD Software Assurance Strategy.
- Developed the Consolidated Exercise Metrics Assessment Tool (CEMAT), a test and evaluation “data collector in a box” capability; DISA/JITC successfully piloted the alpha version for proof of concept during BULWARK DEFENDER 08
- Upgraded the Security Assessment Simulation Toolkit (SAST) to a beta version; used by the USMC as their traffic simulation tool for the range portion of BULWARK DEFENDER 08, and used by DISA as an integral component of their RaDX training capability. As a result, the US Navy is planning to adopt SAST for BULWARK DEFENDER 09, and AFCA is incorporating portions into their SIMTEX/JCOR capability.
- Developed an assessment methodology for CND Service Provider’s (CND/SP) for five DoD components to measure the current state of CND/SP effectiveness in identifying and understanding which malicious activities are being correctly identified and which are not, which will also feed into sensor placement needs and CNDSP analyst training needs.
- Developed CND data-standards and web-services to support the re-engineering of JTF-GNO’s IAVM processes, which are being used as the baseline for NETOP data-standards, and GIG Enterprise asset reporting initiatives which are directed by the CDR of DISA JTF-GNO.
- Developed a pilot plan to implement Interrogator sensors and analyst support at key points across the network that will validate the Interrogator capability in different instantiations that range from large network connection points, key low bandwidth tactical sites to web portals to strategic command sites.

FY 2009 Plans: (\$13.386 million)

- Continue refinement of IA architecture, policy and IA capabilities necessary to support “end-to-end” IA capability for the GIG- including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture.
- Further develop and refine engineering in-depth and vulnerability detection to support the DoD Software Assurance Strategy.

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- Continue refinement of SAST to provide more robust and realistic T&E, training and exercise environment. Improvements include creation of a virtual or “fake” internet, instrumentation to support CEMAT collection capabilities, DoD CAC Engine and new traffic protocols in support of IA joint exercises and the Department’s international exercise program.
- Continue refinement of CEMAT for automated test/exercise data collection, reduction and analysis
- Pilot an IA/CND exercise and training workshop among multiple nations, of various technical skill and capability levels and perform a technology demonstration of SAST and proof-of-concept of distributed CND exercise and training focusing on “train-as-you-fight” techniques and advance partner nation collaboration.
- Develop national supply chain risk management plan to mitigate threats to software/hardware to USG information communications and technology infrastructure.
- Develop a pilot plan for authority based access control (ABAC).
- Finalize NATO and European agreements to expand bilateral sharing agreements fro incident and threat information sharing.
- Continue CND improvements for the Integration and Certification of CND Pilot to support interoperability and operational initiatives including additional data feeds, small agency asset SCAP data collection, authentication and authorization, SCAP remediation standards and continued development/validation of CND data-standards.

FY 2010 Plans: (\$13.477 million)

- Continue refinement of IA architecture, policy and IA capabilities necessary to support “end-to-end” IA capability for the GIG- including enterprise services such as discovery, collaboration, messaging, mediation, data tagging, etc. Support technology demonstration, development and pilots focusing functions required in mid-term (2009-2012) increment of the IA Component of the GIG Architecture.
- Further develop and refine engineering in-depth and vulnerability detection to support the DoD Software Assurance Strategy.
- Continue refinement of SAST to provide more robust and realistic T&E, training and exercise environment. Improvements include creation of a virtual or “fake” internet, instrumentation to support CEMAT collection capabilities, DoD CAC Engine and new traffic protocols in support of IA joint exercises and the Department’s international exercise program.

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- Continue refinement of CND improvements for integration and certification to support interoperability and operational initiatives including additional data feeds, small agency SCAP data collections, authentication and authorization, SCAP remediation standards and continued development/validation of CND data-standards.

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Presidents Budget	15.524	13.459	13.579
Current Presidents Budget	15.125	13.386	13.477
Total Adjustments	-0.399	-0.073	-0.102
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustments	-0.399	-0.073	-0.102
PBD Adjustments			

Program Change Explanation:

FY 2008: Program adjustment.

FY 2009: Program adjustment.

FY 2010: Program adjustment.

C. Other Program Funding Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
O&M, DW (PE0303140D8Z)	16.527	17.443	16.520

D. Acquisition Strategy: N/A

E. Performance Metrics:

- SAST supports CEMAT capability
- SAST available as a core enterprise IA/CND simulation tool
- CEMAT effectively supports T&E community data collection, reduction, analysis and reporting

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009	
Appropriation/Budget Activity RDT&E Defense-Wide, BA 7			R-1 Item Nomenclature: Joint Military Deception Initiative PE 0303260D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
Total PE Cost	0	0	.942	
A. Mission Description and Budget Item Justification:				
<p>Joint Military Deception Initiative (JMDI) is an initiative to revitalize DoD military deception planning and execution capability in the combatant commands. RDT&E funds will support development of next generation devices and capabilities. Program details are classified.</p> <p><u>Program Accomplishments and Plans:</u></p> <p>FY 2008 Accomplishments: N/A</p> <p>FY 2009 Plans: N/A</p> <p>FY 2010 Plans: Mission Support \$0.942</p>				
B. Program Change Summary:				
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	
Previous President's Budget	0	0	0	
Current President's Budget	0	0	.942	
Total Adjustments	0	0	.942	
Congressional program reductions				
Congressional increases				
Department adjustments			.942	

Change Summary Explanation:

FY 2008: N/A

FY 2009: N/A

FY 2010: Department increase

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Performance measures are measured through revitalization of military capabilities for combatant commands.

- **Time** - Enables combatant command to field new capabilities
- **Money** - Reduces duplication of effort
- **Realism** - Allows exploration of new environments and capabilities
- **Fidelity** - Designed to achieve unity of effort throughout IO community

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009																																								
Appropriation/Budget Activity RDT&E - DW/BA #7		R-1 Item Nomenclature: Cyber Security Initiative / 0305103D8Z																																									
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010																																								
Total PE Cost	0.000	0.994	0.993																																								
Project Name																																											
<p>A. Mission Description and Budget Item Justification: This initiative supports a family of Program Elements within this Program Element number that will properly align DoD-wide activities associated with Cyber Security. Activities include development/implementation of Cyber Security plans, assessments and strategies and procurement of associated hardware/software technologies. This program is funded under Budget Activity 7, Operational System Development.</p> <p>Program Accomplishments and Plans: FY 2008 Accomplishments: (\$0.000 million)</p> <p>FY 2009 Plans: (\$0.994 million)</p> <ul style="list-style-type: none"> • Details provided at higher classification under separate cover. <p>FY 2010 Plans: (\$0.993 million)</p> <ul style="list-style-type: none"> • Details provided at higher classification under separate cover. 																																											
<p>B. Program Change Summary:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>FY 2010</u></th> </tr> </thead> <tbody> <tr> <td>Previous Presidents Budget</td> <td>0.000</td> <td>1.000</td> <td>1.000</td> </tr> <tr> <td>Current Presidents Budget</td> <td>0.000</td> <td>0.994</td> <td>0.993</td> </tr> <tr> <td>Total Adjustments</td> <td>0.000</td> <td>-0.006</td> <td>-0.007</td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional rescissions</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SIBR/STTR Transfer</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Program Adjustment</td> <td></td> <td>-0.006</td> <td>-0.007</td> </tr> </tbody> </table>					<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	Previous Presidents Budget	0.000	1.000	1.000	Current Presidents Budget	0.000	0.994	0.993	Total Adjustments	0.000	-0.006	-0.007	Congressional program reductions				Congressional rescissions				Congressional increases				Reprogrammings				SIBR/STTR Transfer				Program Adjustment		-0.006	-0.007
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>																																								
Previous Presidents Budget	0.000	1.000	1.000																																								
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Congressional increases																																											
Reprogrammings																																											
SIBR/STTR Transfer																																											
Program Adjustment		-0.006	-0.007																																								

Change Summary Explanation:

FY 2008: No change.

FY 2009: Program adjustment.

FY 2010: Program adjustment.

C. Other Program Funding Summary:

	FY 2008	FY 2009	FY 2010
O&M, DW (PE 0305103D8Z)	0.000	13.402	17.890

D. Acquisition Strategy:

- Details provided at higher classification under separate cover.

E. Performance Metrics:

- Details provided at higher classification under separate cover.

Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009			
Appropriation/Budget Activity RDT&E, Defense Wide (0400), Budget Activity 7				R-1 Item Nomenclature: 0305125D8Z/CRITICAL INFRASTRUCTURE PROTECTION (CIP)			
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	13.265	17.802	12.725				
Critical Infrastructure Protection Project 125	13.265	17.802	12.725				

A. Mission Description and Budget Item Justification:

The Defense Critical Infrastructure Program (DCIP) is a Department of Defense (DOD) risk management program that seeks to ensure the availability of networked assets critical to DOD missions, to include DOD and non-DOD, domestic and foreign infrastructures essential to planning, mobilizing, deploying, executing, and sustaining United States military operations on a global basis. Through identifying Defense Critical Assets, assessing them to determine vulnerabilities, incorporating specific threat and hazard information and analysis, and visually displaying relevant infrastructure data and analysis, DOD will be positioned to make risk management decisions to ensure the appropriate infrastructure is available, when needed, to support DOD missions.

Specifically, Combatant Commands (COCOMs) are responsible for identifying the mission capability requirements and coordinating with the Military Departments, Defense Agencies, DOD Field Activities, and Defense Sector Lead Agents to identify and assess Defense Critical Assets. As asset owners and capability providers, the Secretaries of the Military Departments and the Directors of Defense Agencies and DOD Field Activities, coordinate with the COCOMs to identify and prioritize the assets required to support mission-essential functions. Asset owners will also assess identified Defense Critical Assets to identify vulnerabilities and apply appropriate remediation and mitigation measures. The Defense Sector Lead Agents are responsible for identifying the specific functions, systems, assets (DOD and non-DOD owned), and interdependencies within the Defense Sector infrastructure networks supporting the identified critical missions.

Each Defense Sector Lead Agent, as identified in DODD3020.40, represents one of ten (10) functional areas that provide support to the Combatant Commanders and asset owners. These functional areas are as follows: defense industrial base (DIB); financial services; global information grid (GIG); health affairs; intelligence, surveillance, and reconnaissance (ISR); logistics; personnel; public works; space; and transportation.

In addition, DCIP manages specific analytic efforts in the identification and maintenance of specific inter- and intra-dependencies DOD has on the foundational commercial infrastructure networks supporting the identified critical missions. Specific analytic efforts are focused within six (6) commercial infrastructure areas: energy (electric power, natural gas); chemicals; transportation; telecommunications; water; and petroleum, oil, lubricants (POL).

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Budget Estimates Submission	12.587	17.802	12.725
Current Budget Estimates Submission	13.265	17.802	12.725
Total Adjustments			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
SIBR/STTR Transfer			
GWOT Supplemental Appropriation*			
Other	+0.678		
- FY09 total includes \$5.2 in congressional adds.			

Exhibit R-2, RDT&E Budget Item Justification		Date: May 2009	
	FY 2008	FY 2009	FY 2010
Accomplishment/Subtotal Cost	1.542	1.500	1.550

DCIP Strategic Partnerships and Enabling Technologies

FY 2008: The program has:

- Developed, leveraged, maintained, and enhanced tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Defense Industrial Base (DIB) assets.
- Developed protocols and standards to ensure interoperability of Homeland Security Information Network Components and DCIP Common Operating Picture (COP) for a HLS/HLD COP and situational awareness.
- Deployed the Knowledge Display and Aggregation System (KDAS) on the NIPR-net.

FY 2009: The program will:

- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Critical Assets.
- Deploy the Knowledge Display and Aggregation System (KDAS) on the SIPR-net.

FY 2010: The program will:

- Develop, leverage, maintain, and enhance tools and data sets based on requirements derived from the DCIP community and the output of assessments performed on Critical Assets.
- Continue to maintain and enhance KDAS capability.

Exhibit R-2a, RDT&E Project Justification		Date: May 2009	
	FY 2008	FY 2009	FY 2010
Accomplishment/Subtotal Cost	11.723	16.302	11.175

DCIP Plans, Programs, and Capabilities Integrated and Implemented at All Levels

FY 2008: The program has:

- Published the Department of Defense Instruction for Critical Infrastructure.
- Published the Strategy for Defense Critical Infrastructure.
- Published the Defense Critical Infrastructure Program Plan.
- Conducted and maintained commercial infrastructure intra- and inter-dependency analysis on a minimum of 25 DOD critical assets contained on the COCOM Integrated Priority List (IPL)
- Applied risk management methodology to all identified critical assets
- Developed a prioritization methodology to substantiate investment in risk management recommendations
- Performed trend analysis and develop remediation and mitigation options for addressing risks identified as part of the assessment process.
- Developed a prioritization methodology to substantiate investment in risk management recommendations
- Provided technical analysis and recommendations on infrastructure networks, points of service, interdependencies, and priority restoration for pre-event and post-event analysis for manmade or natural disaster incidents, and intelligence relating to possible terrorist threats.

FY 2009: The program will:

- Incorporate DOD DCIP assessment training curriculum into established DOD education and training programs
- Provide technical analysis and recommendations on infrastructure networks, points of service, interdependencies, and priority restoration for pre-event and post-event analysis for manmade or natural disaster incidents, and intelligence relating to possible terrorist threats.
- Apply risk management methodology to all identified Defense Critical Assets.
- Perform trend analysis and develop remediation and mitigation options for addressing risks identified as part of the assessment process.
- Enhance electrical power grid modeling capabilities resident at the INL used for analysis of Defense

Critical Infrastructures interdependence with commercial electrical power. (Congressional Add- Electric Grid Reliability)

- Build a networked and distributed risk assessment tool capitalizing upon advanced infrastructure interdependency simulations available at the Idaho National Laboratory (INL). Incorporate both real-time and distributed system modeling capabilities will provide expanded capabilities for analysis of systems critical to DoD. (Congressional Add- Disaster Response: Communications and Other Infrastructures Restoration Program

FY 2010: The program will:

- Provide technical analysis and recommendations on infrastructure networks, points of service, interdependencies, and priority restoration for pre-event and post-event analysis for manmade or natural disaster incidents, and intelligence relating to possible terrorist threats.
- Apply risk management methodology to all identified Defense Critical Assets.
- Perform trend analysis and develop remediation and mitigation options for addressing risks identified as part of the assessment process

C. Other Program Funding Summary: DCIP O&M funding is allocated to the Defense Sectors/Defense Agencies, and to OSD DCIP as the Sector Specific Agency (SSA) for the Defense Industrial Base (DIB). O&M funding will be used by these organizations to identify critical assets supporting DOD missions using the standard methodology developed through DCIP, assessing these identified critical assets to identify critical infrastructure support, and the performance of risk management activities associated with these assessed assets.

COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
O&M,DW 0902198D8Z	18.997	18.664	18.427					

D. Acquisition Strategy: N/A

E. Major Performers: N/A

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense Wide (0400), Budget Activity 7				R-1 Item Nomenclature: 0305186D8Z/Policy R&D Programs				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	13.590	8.192	6.948					
Policy R&D 186	13.590	8.192	6.948					

A. Mission Description and Budget Item Justification: Continues development of tools to overcome military security issues. Since the global environment is dynamic, research is necessary to continue understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates information awareness concerning catastrophic events, and develops links to information and data warehouses. Continues Congressionally directed technology transfer program to consolidate and coordinate various military endeavors that pass dual-use technology equipment and information to first responders. Blends several disciplines including surveillance, operations, policy, information, training and technology. Continues the development through FY2009 of the Adaptive Planning Scenarios with a set of software and hardware tools that will replace the current war/contingency planning system (i.e. methodology and software) with one that produces war/contingency plans more rapidly. This is a joint effort with the Joint Chiefs of Staff.

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Budget Estimates Submission	10.560	8.237	5.089
Current Budget Estimates Submission	13.590	8.192	6.948
Total Adjustments			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
SIBR/STTR Transfer			
Other	3.030	-0.045	1.859

C. Other Program Funding Summary: See R-2a
D. Acquisition Strategy: See R-2a
E. Performance Metrics: See R-2a

Exhibit R-2a, RDT&E Project Justification	Date: May 2009
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Appropriation/Budget Activity RDT&E BA 7				R-1 Item Nomenclature: Policy R&D Programs, 03050186D8Z				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010					
Policy R&D 186	13.590	8.192	9.911					

A. Mission Description and Budget Item Justification: Continues the development of tools to overcome military security issues. Since the global environment is dynamic, research is necessary to continue understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates information awareness concerning catastrophic events, and develops links to information and data warehouses. Continues to build partnership capabilities through analytical projects that counter organizational warfare and develops infrastructure and sanctuary denial options. Blends several disciplines including surveillance, operations, policy, information, training and technology.

B. Program Change Summary

	FY 2008	FY 2009	FY 2010	
Accomplishment/Subtotal Cost				
Policy R&D Programs	2.700	3.000	3.164	

Identifies international technologies and provides program management oversight and technical support for projects cooperating with international partners. Anticipates exploitation of technology, including available and advanced capabilities, and works through the international commercial sector and academia concerning adversary’s application of technology. Explores processes and policy to integrate international capabilities across the spectrum of international security issues.

FY 2008: The program:

- Developed software tools in conjunction with the US Pacific Combatant Command to understand nation turmoil.
- Adapts the culture and political environment within the Asia/Pacific area to various scenarios.

FY 2009: The program will:

- Expand the development of software tools into a broader focus within Asia/Pacific and South/Central America.
- Fund researchers who will begin to integrate process tools within the military and promote homeland defense initiatives.
- Further develop ongoing research efforts within the Services to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.

Exhibit R-2a, RDT&E Project Justification	Date: May 2009
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FY 2010: The program will:

- Research process tools to integrate the military in non-combative situations globally.
- Promote homeland defense initiatives with dual application worldwide in US military operations.
- Further develop ongoing research efforts within the Services and Combatant Commands to better analyze, modify, design, and demonstrate enduring counterinsurgency technical and operational capabilities.
- Develops initiatives that include broad linguistic capabilities and cultural understanding in ungoverned areas, develops international policy in lawless regions as they pertain to military operations and researches alternatives to Combatant Commands that prevent the expansion of terrorist cells into ungoverned areas.

	FY 2008	FY 2009	FY 2010	
Accomplishment/Subtotal Cost Defense Planning Scenarios	2.190	2.192	0.000	

Illustrates and depicts challenges in a US/Allied strategic area for future operations. DPS pushes DoD toward transformation through strategic concepts and in cooperation with Joint Staff. Other participants are Military Services, Combatant Commanders, and the Defense Agencies. Guidance and approval are provided by the Deputy’s Advisory Working Group (DAWG). Scenarios are applied to force planning, joint concept development activities; combat development, and joint/interagency war games. Information from DPS analysis sets key analytic parameters, models, assumptions and variations in key factors, threat descriptions by the intelligence community; Blue and Red force characteristics, and outlines of concepts of operations.

FY 2008: The program:

- Develops scenario options that involve various problem areas and objectives. Provides a forum to integrate various processes, techniques, and capabilities in a senior interagency group
- Develops strategic concepts in irregular warfare scenarios that include homeland defense capabilities and resources.

FY 2009: The program will:

- Continues to develop alternative scenario options on a global scale that involve problem areas and objectives. Provides a forum to integrate various processes, techniques, and capabilities in a senior interagency group
- Continues to develop strategic concepts in combat and irregular warfare scenarios that include homeland defense capabilities and resources.

FY 2010: The program will: No funding available.

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Exhibit R-2a, RDT&E Project Justification	Date: May 2009
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	FY 2008	FY 2009	FY 2010	
Accomplishment/Subtotal Cost Long Term Competition	0.000	0.000	3.784	

This request is for support to the Long Term Competitions (LTC) program is an analytical effort chartered to provide the DoD senior leadership with an understanding of key long-term developments and dynamics in specific areas of the global security environment, and to develop competitive strategies for their consideration as the Department seeks to address these long term challenges. The LTC Program will provide rigorously analyzed competitive strategy recommendations to these senior DoD leaders, and will require the support of organizations and experts outside of government to deliver the highest quality analysis, concepts and recommendations. Funding for the LTC program will be used to: bring outside experts into Task Force working groups and strategy review teams; support wargaming and workshops; conduct analytical studies of key developments and dynamics, and their impact on the future security environment and U.S. military capabilities in that environment; and explore new approaches to addressing key analytical requirements.

FY 2008: No funding available.

FY 2009: No funding available.

FY 2010: Specific efforts are classified.

	FY 2008	FY 2009	FY 2010	
Accomplishment/Subtotal Cost Pacific Disaster Center	6.000	0.000	0.000	

The Pacific Disaster Center (PDC) leveraged its achievements in agile Information and Communication Technologies (ICT) and enterprise data management practices with its established network of disaster managers—resulting in an effective response to natural disasters such as the Great Sumatra Earthquake and Indian Ocean tsunami. Increased the recognition of ICT at national and regional levels around the globe. These events also showcased the specialized applications developed—and their proven civilian-military applications—in developing both “situational awareness” and for communicating in crisis and post-crisis situations.

Exhibit R-2a, RDT&E Project Justification

Date: May 2009

FY 2008: The program:

- Continued the Edge Institute at the Navy Post Graduate School (NPS) and selected research efforts at other universities.
- Continued, in collaboration with allies and NATO partners, the development and testing of metrics and a conceptual framework suitable for assessing network-centric coalition operations.
- Supported JFCOM and other DoD organizations in the design and conduct of exercises
- Continued to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
- Conducted 12th International Command and Control Research and Technology Symposia.
- Conducted workshops to explore command and control related issues.
- Continued to develop manuscripts for widely read and respected C2 publications and outreach program.
- Continued campaign of experimentation related to information sharing, collaboration, and trust.

FY2009: The program will: No funding available.

FY 2010: The program will: No funding available.

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009
Appropriation/Budget Activity RDT&E DW/BA #7			R-1 Item Nomenclature: Net Centricity /0305199D8Z	
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010	
GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities	9.856	12.647	1.479	
A. Mission Description and Budget Item Justification:				
<p>This program element will support enterprise-wide systems engineering, information management and information technology activities focused on the development, integration, testing and assessment of capabilities and applications in support of joint and coalition warfighter needs. Resources will support net centric collaborative development and operations to improve situational awareness, interoperability and performance and operational planning efforts. This program will instantiate enterprise-wide systems engineering guidance and provide technical solutions to solve enterprise interoperability and performance issues to enable the warfighter, intelligence, and business communities to meet their respective mission requirements. This program is funded under Budget Activity 7, Operational System Development, because it supports engineering development and testing of RDT&E activities.</p> <p>The Global Information Grid Evaluation Facilities (GIG-EF) and Enterprise-Wide Systems Engineering (EW SE) project provides resources needed to test key systems in an end-to-end manner across the enterprise, including providing for system engineers, at the Naval Research Laboratory and several other test locations in the U.S. The evaluation facilities will be used to evaluate interoperability of multiple Transformational Communications programs including but not limited to the Joint Tactical Radio System (JTRS), Global Information Grid Bandwidth Expansion (GIG BE), Teleports, and Transformational Satellite Communications System (TSAT). The funding will also provide the engineering resources necessary for performing the Global Information Grid (GIG) enterprise-wide systems engineering oversight function. Resources will be applied to enterprise-wide systems engineering topics related to the successful integration of several programs that will form the GIG in areas such as information assurance (IA), quality of service (QOS), network management, interface definition and standards selection, and routing protocols. The GIG-EF & EW SE effort provides:</p> <ul style="list-style-type: none"> - Continuous oversight of the GIG's evolution - Maintains a GIG enterprise-wide technical direction - Establishes an enterprise-side analysis capabilities - Establishes a GIG compliance management program - Provides an independent, overarching review of technology and interface standards. - Ensures technical issues are identified early and schedules synchronized to produce a jointly interoperable, timely and cost-effective architecture development. - Prevents costly program reworks and restructuring, and more importantly, avoid delays in providing joint warfighter connectivity. 				

Note that FY09/10/11 funding disconnect resulted from duplicate cuts to a program titled Horizontal Fusion (HF) formerly part of this PE to support priority net centric transformation.. These cuts not only zeroed out the HF funding but also cut deeply into the GIG Evaluation Facility and GIG End-to-End Systems Engineering Activities in FY2010.

Program Accomplishments and Plans:

FY 2008 Accomplishments (\$9.856 million)

- Developed a cost benefit analysis to migrate to the Black Core.
- Developed a DoD level plan to migrate to the Black Core.
- Developed a service oriented architecture for tactical users.
- Developed interface requirements for tactical network management.
- Developed a HAIPE peer discovery service description.
- Developed approaches to provide a HAIPE peer discovery service at the tactical edge.
- Developed an information sharing environment.
- Developed an IPv6 Addressing plan.
- Gained approval for NCID 3.0.
- Updated and operationalized the GIG Interoperability Compliance Assessment tool.
- Used the GIG performance evaluation tool to support end to end enterprise level analysis.
- Worked with Services and Defense Agencies to identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance.
- Established a GIG Technical Foundation compliance process to support existing DoD processes.
- Established GIG Performance Assessment process.
- Developed an approach to integrate cross-organizational compliance processes into a single environment.
- Developed an architecture to allow for voice interoperability between tactical voice nets and the DISN.

FY 2009 Plans (\$12.647 million)

- Ensure the GIG end-to-end quality of service framework evolves in accordance with the evolution of commercial products, services and technology
- Refine the GIG IA, routing architecture, and network management framework to be consistent with evolving commercial products, services, and technology
- Evolve the service oriented architecture for tactical users and translate to GIG technical direction
- Evolve the interface requirements for tactical network management and translate to GIG technical direction
- Evolve the HAIPE peer discovery service description and translate to GIG technical direction
- Evolve the HAIPE Peer Discovery Service solution for the tactical edge
- Evolve the NCID 3.0 to the GIG Technical Direction (GTD) and associated GIG Enterprise Service Profiles (GESPs)

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- Update the GIG Interoperability Compliance Assessment tool with enterprise level Information Assurance guidance
- Use the GIG performance evaluation tool to support end to end enterprise level analysis and the NC Portfolio Management process
- Work with Services and Defense Agencies to identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance
- Perform end-to-end analysis for encrypting unclassified traffic across the GIG
- Perform end-to-end analysis for converging top secret WANs
- Evaluate vulnerability of IPv6 networks and address issues
- Evaluate cross program technical dependencies of the NECC program and address technical issues

FY 2010 Plans (\$1.479 million)

Due to the reduced funding level only a minimal, skeletal effort will be accomplished. Most of the previously planned technical work required to continue to evolve the GIG to provide the basis for net centricity will need to shift to FY2011.

- This funding will Ensure DoD Policy evolves to support effective governance to implement an interoperable GIG infrastructure
- Work with Services and Defense Agencies to promote net centricity, identify and address cross-program issues and influence programs to implement compatible designs that maximize end to end performance
- Evolve the GIG Technical Direction to include developing GIG Enterprise Service Profiles (GESPs) in the areas of enterprise services and network management at the tactical edge
- Work with Programs to pilot the PET and the GICA to refine the tools
- Interface with Portfolio Managers, DISA, the Services and Joint Staff to promote and co-ordinate GIG EW SE effort

The following efforts were planned but will be deferred due to the funding shortfall:

- Ensure the GIG end-to-end quality of service (QoS) framework evolves in accordance with the evolution of commercial products, services and technology
- Examine the GIG "Black Core" vision and define a plan for evolving to this vision, tracking implementation of the plan, and focusing on the tactical edge
- Develop the Cost Benefit Analysis and Implementation Plan for the Black Core, focusing on the tactical environment, to support future POMs
- Implement the HAIPE Peer Discovery Service based on the previously developed specification that supports fielding of this capability prior to FY12 to allow for the migration to the Black Core
- Develop a specification to support HAIPE Peer Discovery in the tactical environment
- Evolve the GIG Interoperability Compliance Assessment (GICA) tool with new technical guidance, to include enterprise level information assurance guidance
- Evolve the GIG Performance Evaluation Tool (PET) and Performance Assessment Framework (PAF) and use these tools as part of the end-to-end performance analysis process in support of the Capability Portfolio Management decisions

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Presidents Budget	10.154	12.716	1.490
Current Presidents Budget	9.856	12.647	1.479
Total Adjustments	-0.298	-0.069	-0.011
Congressional program reductions			
Congressional rescissions			
Congressional increases			
Reprogrammings			
SIBR/STTR Transfer			
Program Adjustment	-0.298	-0.069	-0.011

Program Change Explanation:

FY 2008: Program adjustment.

FY 2009: Program adjustment.

FY 2010: Program adjustment.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

- User Activity and Participation. A key measurement of GIG-EF success is the amount of user/program participation and usage of the GIG-EF in support of Joint warfighting requirements.
- Contributions to GIG development and transition. The GIG-EF should also advance the state of the art in support of GIG implementation
- Risk mitigation for the GIG.
- Demonstrations in support of GIG overall goals.
- Number of GIG Enterprise-Wide Systems Engineering Oversight working group requirements addressed.
- Tangible products such as frameworks and design guidance used for program assessments and reviews.
- Streamlined business processes for documenting GIG enterprise-wide technical guidance.
- Prioritized listing on enterprise-wide technical issue.

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- Technical solutions to enterprise interoperability and performance issues.
- Specific modifications to Programs based on the frameworks and guidance that improve program compatibility and end-to-end performance.
- A more collaborative environment where systems engineering organizations of individual GIG programs and the enterprise-wide systems engineering oversight organization mutually identify and solve issues related to maximizing end to end performance.

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Exhibit R-2, RDT&E Budget Item Justification				Date: May 2009				
Appropriation/Budget Activity RDT&E, Defense Wide (0400), Budget Activity 7				R-1 Item Nomenclature: 0305387D8Z / Homeland Defense Technology Transfer Program				
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	0	0	2.963					
HD Tech Transfer 186	0	0	2.963					

*Not a new start; segregates funding under a new PE for greater visibility of program funding

A. Mission Description and Budget Item Justification: In conjunction with outreach program, ensures a successful and balanced transfer of dual-use technology equipment and information without impeding military readiness. Manages what first responders receive, achieves a balance between first responders and military equipment, and transfers technology through a transitional effort that has dual utility to enhance readiness. Meets the Congressional intent of the FY 2003 National Defense Authorization Act.

B. Program Change Summary:

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Previous Budget Estimates Submission	0	0	0
Current Budget Estimates Submission	0	0	2.963
Total Adjustments			
Congressional program reductions			
Congressional rescissions			
Congressional increases			
SIBR/STTR Transfer			
Other	0	0	2.963

C. Other Program Funding Summary: See R-2a
D. Acquisition Strategy: See R-2a
E. Performance Metrics: See R-2a

Exhibit R-2a, RDT&E Project Justification	Date: May 2009
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Appropriation/Budget Activity RDT&E BA 7	R-1 Item Nomenclature: Homeland Defense Technology Transfer Program 03050387D8Z
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Cost (\$ in millions)	FY 2008	FY 2009	FY 2010				
Homeland Defense Technology Transfer Program 186	0	0	2.963				

A. Mission Description and Budget Item Justification: Continues Congressionally directed Technology Transfer Program to consolidate and coordinate various military endeavors that pass technology and equipment to first responders.

B. Program Change Summary

	FY 2008	FY 2009	FY 2010	
Accomplishment/Subtotal Cost				
Homeland Defense Technology Transfer	2.700	3.000	2.963	

Provides outreach through coordination and cooperation with inter-agency partners to provide dual-use technology and equipment to first responders. Ensure DoD components conduct Technology Transfer programs that are appropriate for the respective component. Provides information to stakeholders on equipment and technology use and availability. Funding was previously in PE 0305186D8Z.

FY2008: The program:

- Conducted technology transfer program in a consolidated environment.
- Developed draft metrics for use in measuring program success.
- Initiated a consortium of subject matter expertise from across the Department and select, Inter-agency organizations.
- Conducted outreach programs.

FY 2009: The program will:

- Further refine metrics and initiate for use in measuring program success.
- Continue a consortium of subject matter expertise from across the Department and select, Inter-agency organizations.
- Expand program outreach programs to include greater emphasis on defense activities and service components.
- Develop and test the transfer process via a pilot.

Exhibit R-2a, RDT&E Project Justification

Date: May 2009

FY 2010: The program will:

- Continue conducting the technology transfer program in a consolidated environment.
- Finalize metrics for continued use in program success.
- Use a consortium of subject matter experts/governance council to prioritize technology transfer requirements.
- Continue program outreach programs, identifying potential opportunities for expansion.
- Implement a transfer process.

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Exhibit R-2, RDT&E Budget Item Justification			Date: May 2009																												
Appropriation/Budget Activity RDT&E Defense-Wide, BA 7		R-1 Item Nomenclature: International Intelligence Technology Assessment, Advancement & Integration PE 0305600D8Z																													
Cost (\$ in millions)	FY 2008	FY 2009	FY 2010																												
Total PE Cost	0	0	1.389																												
<p>A. Mission Description and Budget Item Justification: Provides for the research and development required for the migration and integration of existing and advanced multinational and bi-lateral international intelligence information based algorithmic and data fusion technologies into an integrated US, NATO, and coalition based intelligence service oriented architecture/ data repository such as the U.S. and NATO Battlefield Information Collection and Exploitation System(s). Provides the research and development for rapid implementation of intelligence based decision applications and data mechanisms in support of USD(I)'s mission to ensure necessary intelligence information is being acquired, analyzed, and disseminated rapidly amongst our allies and coalition partners.</p> <p><u>Program Accomplishments and Plans:</u></p> <p>FY 2008 Accomplishments: N/A</p> <p>FY 2009 Plans: N/A</p> <p>FY 2010 Plans: Mission Support \$1.389. Identify and capture existing USPACOM and USEUCOM intelligence data fusion applications for integration into the U.S. and coalition architectures.</p> <p>B. Program Change Summary:</p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 2008</u></th> <th><u>FY 2009</u></th> <th><u>FY 2010</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Current President's Budget</td> <td>0</td> <td>0</td> <td>1.389</td> </tr> <tr> <td>Total Adjustments</td> <td></td> <td></td> <td>1.389</td> </tr> <tr> <td> Congressional program reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Department adjustments</td> <td></td> <td></td> <td>1.389</td> </tr> </tbody> </table>					<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	Previous President's Budget	0	0	0	Current President's Budget	0	0	1.389	Total Adjustments			1.389	Congressional program reductions				Congressional increases				Department adjustments			1.389
	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>																												
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Congressional increases																															
Department adjustments			1.389																												

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Change Summary Explanation:

FY 2008: N/A

FY 2009: N/A

FY 2010: Department increase.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics: Performance will be monitored on a monthly basis via Program Reviews, Current Expenditures, Estimated Future Expenditures, and Cost/Schedule Adherence. R&D will provide increased intelligence fusion capabilities in support of US and coalition forces utilizing the US BICES and NATO networks within the Afghanistan theater and provide increased database information via a DCGS-A like architecture. Provides an increase in intelligence disciplines (Imint, Sigint, and potential Humint) in support of US and Allied/Coalition forces that currently is very limited to the warfighter. Increased intelligence fusion tools will significantly increase the timeliness of intelligence and bring US BICES/NSCC/IFC capabilities into the current technology baselines (e.g. A-Space for collaboration)

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7		PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)						
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate					
P018 NATO Alliance Ground Surveillance (AGS)	16.150	27.274	74.485					

A. Mission Description and Budget Item Justification:

(U) This project supports the U.S. share of the cost for NATO to acquire a ground surveillance capability similar to what the NATO owned and operated Airborne Warning and Control System (AWACS) provides for air surveillance.

(U) The North Atlantic Council (NAC) validated the requirement in 1995 for a NATO-owned and operated core air-to-ground surveillance capability supplemented by interoperable national assets. Since then, the Major NATO Commanders have consistently made Alliance Ground Surveillance (AGS) their number one equipment acquisition priority.

- October 1997, NATO Conference of National Armaments Directors (CNAD) approved AGS NATO Staff Requirement (NSR).
- May 1999, NATO Washington Summit Defense Capabilities Initiatives (DCI) included need for a NATO-owned and operated core system for ground surveillance
- September 2001, Reinforced NAC (RNAC) re-affirmed need for a NATO-owned and operated AGS capability by 2010 and to move forward with the program.
- November 2002, NATO Prague Summit approved Prague Capabilities Commitment (PCC) that includes an airborne ground surveillance capability.
- December 2003, AGS Steering Committee approved in principle the merger of NATO AGS and the Trans-Atlantic Cooperative AGS Radar (TCAR) sensor projects.
- May 2004, Following a competitive Project Definition Study, CNAD endorsed the Trans-Atlantic Industrial Proposed Solution (TIPS) consortium's selection as the program of record to enter the Design and Development Phase and directed that the TCAR sensor development project be integrated into the AGS program.
- May 2004, AGS Steering Committee approved an updated Master Schedule supporting a 2010 Initial Operating Capability (IOC) with Full Operational Capability (FOC) by 2013.
- November 2005, Risk Reduction Study (RRS) was completed providing the Nations a higher degree of confidence in six areas of concern: program management; harmonization with other pending NATO aircraft programs; interoperability with existing national systems; compatibility with the NATO intelligence, surveillance and reconnaissance architecture; integration of the TCAR sensor; and affordability.
- May 2006, CNAD approved release of a Request for Proposal (RFP) to industry for the Design and Development (D&D) phase, including a mixed fleet (manned and unmanned) and development of at least one radar for either, with a total procurement Not to Exceed of \$3.3B (Base Year euros equivalent to \$5.4B Then Year dollars).
- October 2006, AGS Industries (AGSI, former TIPS consortium) formally submitted a proposal compliant with the RFP. CNAD agreed that the proposal, as submitted by AGSI, would form the basis for negotiations of the D&D contract and tasked the AGS Support Staff (AGS3) to begin negotiations with AGSI.
- November 2006, Heads of State at NATO Riga Summit endorsed the progress on NATO AGS, with a view to achieving real capabilities, as one of a set of initiatives to increase the capacity of NATO forces to address contemporary threats and challenges.
- May 2007, Contract negotiations with AGSI were completed. Total value of the D&D contract was \$545M (Then Year euros equivalent to \$763M Then Year dollars) for the system design activity (to be funded by all participating nations) plus 385M (Then Year euros equivalent to \$539M Then Year dollars) for the radar development activity (to be funded by six nations, including the U.S.). The period of performance was 31 months after award and the contract prices were valid until December 1, 2007.
- June 2007, The AGS Funding Documents (Program Memorandum of Understanding (PMOU), Design & Development Supplement, and the TCAR Implementing Arrangement (IA)) were released to nations for final staffing, leading to their approval and signature. Target completion date was the Fall CNAD meeting in October 2007.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

RDTE, Defense Wide BA# 7

PE NUMBER AND TITLE

1001018D8Z - NATO Alliance Ground Surveillance (AGS)

- July 2007, At an Extra-ordinary CSC meeting, Canada, France, Germany, and The Netherlands indicated they could not support the Program of Record for various reasons, primarily affordability, and that they would probably not participate if carried forward. This lack of key national support caused many other nations concern and the CSC recommended ceasing work on the Program of Record and to go forward with an alternate UAV only capability based on an Off-The-Shelf Global Hawk (OTS-GH) equipped with the U.S. Multi-Platform Radar Insertion Program (MP-RTIP) sensor. This capability was previously endorsed by the user, Supreme Headquarters Allied Command Europe (SHAPE,).
- August 2007, CNAD endorsed the CSC recommendation to officially notify AGS Industries to close the Program of Record. AGS3 was directed to revise the procurement strategy and update the funding documents and the NATO Management Organization Charter for presentation at an Extra-ordinary CSC meeting on September 6, 2007.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY
RDTE, Defense Wide BA# 7

PE NUMBER AND TITLE
1001018D8Z - NATO Alliance Ground Surveillance (AGS)

<u>B. Program Change Summary</u>	FY 2008	FY 2009	FY 2010	
Previous President's Budget (FY 2008/2009)	31.194	27.756	75.925	
Current BES/President's Budget (FY 2010)	16.150	27.274	74.485	
Total Adjustments	-15.044	-0.482	-1.440	
Congressional Program Reductions				
Congressional Rescissions		-0.152		
Congressional Increases				
Reprogrammings	-14.140	-0.330		
SBIR/STTR Transfer	-0.847			
Other	-0.057		-1.440	

Restructured program due to affordability and revised MOU signature date

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy: Not applicable for this item.

E. Performance Metrics: Not Applicable.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7		PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)				PROJECT P018	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate				
P018 NATO Alliance Ground Surveillance (AGS)	16.150	27.274	74.485				

A. Mission Description and Budget Item Justification:

(U) This project supports the U.S. share of the cost for NATO to acquire a ground surveillance capability similar to what the NATO owned and operated Airborne Warning and Control System (AWACS) provides for air surveillance.

(U) The North Atlantic Council (NAC) validated the requirement in 1995 for a NATO-owned and operated core air-to-ground surveillance capability supplemented by interoperable national assets. Since then, the Major NATO Commanders have consistently made Alliance Ground Surveillance (AGS) their number one equipment acquisition priority.

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 - May 2004, AGS Steering Committee approved an updated Master Schedule supporting a 2010 Initial Operating Capability (IOC) with Full Operational Capability (FOC) by 2013.
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 - May 2006, CNAD approved release of a Request for Proposal (RFP) to industry for the Design and Development (D&D) phase, including a mixed fleet (manned and unmanned) and development of at least one radar for either, with a total procurement Not to Exceed of \$3.3B (Base Year euros equivalent to \$5.4B Then Year dollars).
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 - November 2006, Heads of State at NATO Riga Summit endorsed the progress on NATO AGS, with a view to achieving real capabilities, as one of a set of initiatives to increase the capacity of NATO forces to address contemporary threats and challenges.
 - May 2007, Contract negotiations with AGSI were completed. Total value of the D&D contract was \$545M (Then Year euros equivalent to \$763M Then Year dollars) for the system design activity (to be funded by all participating nations) plus 385M (Then Year euros equivalent to \$539M Then Year dollars) for the radar development activity (to be funded by six nations, including the U.S.). The period of performance was 31 months after award and the contract prices were valid until December 1, 2007.
- June 2007, The AGS Funding Documents (Program Memorandum of Understanding (PMOU), Design & Development Supplement, and the TCAR Implementing Arrangement (IA)) were released to nations for final staffing, leading to their approval and signature. Target completion date was the Fall CNAD meeting in October 2007.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7	PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)	PROJECT P018
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- July 2007, At an Extra-ordinary CSC meeting, Canada, France, Germany, and The Netherlands indicated they could not support the Program of Record due to affordability. The CSC recommended ceasing work on the Program of Record in favor of a UAV only capability based on an Off-The-Shelf Global Hawk (OTS-GH) equipped with the U.S. Multi-Platform Radar Insertion Program (MP-RTIP) sensor. This capability was previously endorsed by the user, Supreme Headquarters Allied Command Europe (SHAPE).
- September 2007, CSC directed AGS3 to revise the procurement strategy and update the funding documents and the NATO Management Organization Charter for the restructured program.
- June 2008, NATO AGS Program Memorandum of Understanding released for national staffing.
- October 2008, Request for Proposal for NATO AGS prime development contract released to industry.

B. Accomplishments/Planned Program:

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
FY 2008 Accomplishments:	16.150			

- Revised the Procurement Strategy, Program Memorandum of Understanding (PMOU), and NATO Management Organization Charter to reflect an Unmanned Air Vehicle (UAV)-only solution based on 8 Off-The-Shelf Global Hawk (OTS-GH) Block 40 UAVs equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor, and 16 ground stations.
- Prepared a RFP for a single, 2-phase contract consisting of a Design, Development, and Demonstration (DD&D) Phase and a Production Phase for a two-orbit, UAV-only, ground surveillance capability. CNAD approved the RFP and a contractual cost ceiling of \$1.4B (~\$2.3B).
- Released revised PMOU for national staffing; completed US national staffing of the PMOU
- Developed plans to transition the NATO AGS Capability Steering Committee (CSC) to a NATO AGS Management Organization (NAGSMO) upon contract award.
- Obtained approval of NAGSMO Charter by the North Atlantic Council. Charter will be in effect upon signature of the PMOU.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
FY 2009 Plans:		27.274		

- Sign the Program Memorandum of Understanding.
- Stand-up NATO Management Organization (NAGSMO). Recruit and appoint U.S. Representative to the Board of Directors.
- Establish a NATO AGS Management Agency (NAGSMA). Implement plan to transition AGS3 to NAGSMA. Provide personnel to NAGSMA.
- Receive a formal proposal from industry that is compliant with the RFP.
- Evaluate the contractor proposal, and complete formal negotiations. Award contract.
- Participate in technical and operational Working Groups.

<u>Accomplishments/Planned Program Title:</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
FY 2010 Plans:			74.485	94.400

- Provide personnel to NAGSMA as necessary to maintain proportional U.S. representation.
- Provide for a professional user interface to the NATO AGS program office (NAGSMA).
- Participate in technical and operational Working Groups.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 7	PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)	PROJECT P018
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- Improve and expand industry and professional association with NATO allies.
- Address Congressional, Government Accounting Office (GAO), Inspector General (IG) Actions regarding program issues as they arise.
- Ensure effective oversight of the program is provided by continuing to participate in the NAGSMA and BOD.

C. Other Program Funding Summary: Not applicable for this item.

D. Acquisition Strategy:

The U.S. will sign a multi-national Program Memorandum of Understanding (PMOU) committing the U.S. government to NATO-derived shares of the AGS prime contract consisting of a Design, Development & Demonstration and a Production of the NATO AGS system. The NATO AGS procurement strategy is consistent with NATO AGS PMOU provisions.

E. Major Performers:

Category	Name	Location	Type of Work and Description	Award Date
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Contractors:

	Northrop Grumman Corporation	Contractor	Northrop Grumman Corporation will be the NATO AGS prime contractor.	
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OSD RDT&E COST ANALYSIS (R3)

BUDGET ACTIVITY 7 - Operational System Development			PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)							PROJECT P018				
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
NATO AGS Prime Contract	NATO AGS Prime Contract		881	13842		24274	3Q	36545						
NATO AGS Mission Security			29581		4Q	1000		35940						
NATO AGS Study			11725											
ESC/JSX JAIP			1281	208	1-4Q									
Army JAIP-AGS Interoperability and ESC/JSX TCAR	Sub Allocation		5545	100	1-4Q									
Subtotal:			49013	14150		25274		72485						
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
NATO AGS Support			4666		1-4Q									
Subtotal:			4666											
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
Subtotal:														
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date					
NATO AGS			13378	2000	1-4Q	2000	1-4Q	2000	1-4Q					
Subtotal:			13378	2000		2000		2000						
Project Total Cost:			67057	16150		27274		74485						

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY		PE NUMBER AND TITLE												PROJECT													
7 - Operational System Development		1001018D8Z - NATO Alliance Ground Surveillance (AGS)												P018													
Event Name	FY 08				FY 09				FY 10																		
	1	2	3	4	1	2	3	4	1	2	3	4															
Restructure Program, revise acquisition strategy, update NATO funding documents																											
Notify AGS Industries of Change in Direction, Terminate Program of Record																											
(1) Contract Award																											
Design, Development and Demonstration Phase																											

Schedule Profile (R4a Exhibit)

May 2009

BUDGET ACTIVITY 7 - Operational System Development		PE NUMBER AND TITLE 1001018D8Z - NATO Alliance Ground Surveillance (AGS)						PROJECT P018	
<u>Schedule Detail</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>						
Restructure Program, revise acquisition strategy, update NATO funding documents	1Q - 4Q								
Notify AGS Industries of Change in Direction, Terminate Program of Record	1Q								
Contract Award		3Q							
Design, Development and Demonstration Phase		1Q - 4Q	1Q - 4Q						