

## OSD RDT&amp;E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2007

APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 4		PE NUMBER AND TITLE <b>0604648D8Z - Joint Capability Technology Demonstration (JCTD)</b>							
Cost (\$ in Millions)	FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	
Total Program Element (PE) Cost	2.799	3.029	2.960	4.970	8.996	8.974	10.013	10.055	
P649 Joint Capability Technology Demonstration (JCTD)	2.799	3.029	2.960	4.970	8.996	8.974	10.013	10.055	

**A. Mission Description and Budget Item Justification:** In FY 2006, the Deputy Undersecretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) initiated a new business process, building on the successful ACTD program, to support the Department's transformational reform of addressing future threats from a capabilities focus versus the classical threat based viewpoint. The revised ACTD approach is called the Joint Capability Technology Demonstration (JCTD) program, and is based on proven, positive aspects of the ACTD program with new modifications. The JCTD model specifically addresses congressional concerns and recommendations made by the General Accountability Office (GAO) regarding rapid development and transitioning of Combatant Commander (CoCom) relevant capabilities to the joint warfighter in a more cost effective, timely and efficient model. Aligning closely with the thrust of with the Joint Staff's Joint Integration and Development System (JCIDS), JCTDs take a more balanced project candidate identification approach, shifting the overall program's focus to identifying specific warfighter capabilities needs up front (requirements pull), and then finding technology or concepts to address these needs, while maintaining the historical ACTD approach, where new technology is introduced to the warfighter to solve existing operational shortfalls (technology push). The JCTD business process includes a new funding line outside the Science & Technology (S&T) arena. The Budget Activity 4/RDT&E budget line is termed "JCTD transition." It is designed to continue the development/maturity of the most successful ACTD and JCTDs that have proven military utility and are deemed critical by the Combatant Commander (CoCOM) for joint warfighting capabilities. This "transition arm" ensures the most successful demonstrations and capabilities rapidly find a transition path into a program of record. The "transition arm" of the new JCTD model supports fast paced technology transfer and enables an agile program to more smoothly tie into the more deliberate, traditional programming and budgeting process. It will better support the rapid transition of joint, CoCom/coalition operational capabilities. While not all ACTDs and JCTDs require transition funding, these resources provide a "transition bridge" to enable sustainment for innovative, "joint-peculiar" and Combatant Commander (CoCom)/coalition capabilities until traditional programming and budgeting can provide a permanent solution.

The appropriation, Program Element (PE) and Budget Activity (BA) structure for the new JCTD process includes the following:

- JCTD PE 0603648D8Z (RDT&E/DW BA-3)
- JCTD Transition Funding PE 0604648D8Z (RDT&E/DW BA-4)

JCTDs are initiated in Budget Activity three (BA-3) for development and are pre-acquisition demonstrations, characterized by Technology Readiness Levels 4, 5 or 6. Although not developed for production, new JCTDs can provide a path for transition of Science and Technology to acquisition and are low-to-moderate risk vehicles for pursuing those objectives. The JCTD Transition resources help provide transition path and will pioneer a new model for Department of Defense acquisition with the added ability to bridge more agile programs into fielded capabilities. Specifically, the JCTD Transition BA4 will provide a path for rapid fielding successful, transformational capabilities that may require additional transition resources to "bridge" to a program of record. The Defense Wide RDT&E funding managed by DUSD(AS&C) will support demonstration of military utility and deployment of interim capability including a transition period to a program of record, providing the Combatant Commanders, Services, Agencies, and operators with adequate time to address transition issues of supportability, maintainability and training identified by the JCTD/ACTD. The JCTD model will facilitate the transition of successful technologies past the initial development/demonstration phase and into early acquisition.

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**0604648D8Z - Joint Capability Technology Demonstration (JCTD)**

FY 2007/2008/2009 General JCTD Transition Program criteria, history and plans:

- DUSD (AS&C) will maintain oversight of the JCTD/ACTD program.
- ACTD/JCTDs selected for JCTD Transition funding must successfully complete a military utility assessment; have strong CoCom support; and require no more than two years of funding until the traditional Planning, Programming Budgeting & Execution (PPBE) process provides a permanent acquisition/transition solution.
- National Geospatial-Intelligence (NGA) Urban Recon (UR) ACTD was the first successful example of utilizing the BA-4 funds to migrate capabilities to a program of record (POR).
- The ACTDs selected to use the BA-4 funds in FY 2007 are Joint Distance Support and Response (JDSR), which provides a joint, common and interoperable tele-maintenance/training environment, and Language and Speech Exploitation Resources (LASER) which provides capability to reduce foreign language barriers across the full spectrum of DoD operations.
- There are at least three FY 2008 AC/JCTD candidates are under consideration for the JCTD transition funds.
- 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).

<b>B. Program Change Summary</b>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	2.946	3.047	3.050	3.053
Current BES/President's Budget (FY 2008/2009)	2.799	3.029	2.960	4.970
Total Adjustments	-0.147	-0.018	-0.090	1.917
Congressional Program Reductions				
Congressional Rescissions		-0.022		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.147			
Other		0.004	-0.090	1.917

In FY06 and FY07 there were no congressional increases or decreases to the JCTD Transition program element. Congressional rescissions and other taxes such as Section 8125 and FFRDC totaled \$111 thousand that were displayed in the FY 2007 President's Budget. The SBIR/STTR transfer totaled \$147 thousand. Congressional rescissions and other taxes such as Section 8023 for FFRDC totaled \$22.

**C. Other Program Funding Summary:** Not Applicable.

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**D. Acquisition Strategy:** Not Applicable.

**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 ACTD projects. DUSD(AS&C) maintains and provides overall programmatic oversight for the ACTD program, to include the individual ACTD projects. The JCTD/ACTD performance metrics center on how fast relevant joint and/or transformational technologies can be demonstrated and provided to the joint warfighter. 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 these metrics and helps compare/contrast the current ACTD program with the new JCTD business process model.

A comparison of ACTD and JCTD metrics are:

- 1) Project Selection Focus:
  - a. ACTD - Threat based: shared military service and CoCom influence.
  - b. JCTD - Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs.
- 2) Spirial Technologies:
  - a. ACTD - No metric
  - b. JCTD - 25% will provide an operationally relevant product demonstration within 24 months of ID signature.
- 3) Final Demonstation Completed
  - a. ACTD - 3 to 4 years after initiation
  - b. JCTD - 75% of projects complete final demonstration within three years of ID signature.

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4) Shared Funding and Viability of resources:

- a. ACTD - OSD provides no more than 30% of the budgeted resources. Funding provided form many different program elements.
- b. JCTD - OSD provides significantly more funding, greater than 30% in some cases a majority of projected funding, especially in the first two years.

**OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)**

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APPROPRIATION/ BUDGET ACTIVITY RDT&E/ Defense Wide BA# 4		PE NUMBER AND TITLE <b>0604648D8Z - Joint Capability Technology Demonstration (JCTD)</b>						PROJECT <b>P649</b>	
Cost (\$ in Millions)		FY 2006 Actual	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
P649	Joint Capability Technology Demonstration (JCTD)	2.799	3.029	2.960	4.970	8.996	8.974	10.013	10.055

**A. Mission Description and Project Justification:** In FY 2006, the Deputy Undersecretary of Defense for Advanced Systems and Concepts (DUSD(AS&C)) initiated a new business process, building on the successful ACTD program, to support the Department's transformational reform of addressing future threats from a capabilities focus versus the classical threat based viewpoint. The revised ACTD approach is called the Joint Capability Technology Demonstration (JCTD) program, and is based on proven, positive aspects of the ACTD program with new modifications. The JCTD model specifically addresses congressional concerns and recommendations made by the General Accountability Office (GAO) regarding rapid development and transitioning of Combatant Commander (CoCom) relevant capabilities to the joint warfighter in a more cost effective, timely and efficient model. Aligning closely with the thrust of with the Joint Staff's Joint Integration and Development System (JCIDS), JCTDs take a more balanced project candidate identification approach, shifting the overall program's focus to identifying specific warfighter capabilities needs up front (requirements pull), and then finding technology or concepts to address these needs, while maintaining the historical ACTD approach, where new technology is introduced to the warfighter to solve existing operational shortfalls (technology push). The JCTD business process includes a new funding line outside the Science & Technology (S&T) arena. The Budget Activity 4/RDT&E budget line is termed "JCTD transition." It is designed to continue the development/maturity of the most successful ACTD and JCTDs that have proven military utility and are deemed critical by the Combatant Commander (CoCOM) for joint warfighting capabilities. This "transition arm" ensures the most successful demonstrations and capabilities rapidly find a transition path into a program of record. The "transition arm" of the new JCTD model supports fast paced technology transfer and enables an agile program to more smoothly tie into the more deliberate, traditional programming and budgeting process. It will better support the rapid transition of joint, CoCom/coalition operational capabilities. While not all ACTDs and JCTDs require transition funding, these resources provide a "transition bridge" to enable sustainment for innovative, "joint-peculiar" and Combatant Commander (CoCom)/coalition capabilities until traditional programming and budgeting can provide a permanent solution.

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**0604648D8Z - Joint Capability Technology Demonstration (JCTD)**PROJECT  
**P649**

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**B. Accomplishments/Planned Program:**

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Urban Recon (UR)	2.799	0.000	0.000	0.000

The Joint Requirements Oversight Council validated the capability need for Urban Recon (UR) as an FY-03 new start. The outcome of Urban Recon is to provide advanced airborne and terrestrial 3-D reconnaissance capability to US Army Special Operations Command (USASOC) (Operational Manager) using LIDAR sensor with rapid processing software and decision aid software. Urban Recon will provide enhanced urban warfare survivability to early-entry forces by collecting revolutionary 3D urban databases supporting advanced mission planning and rehearsal, vulnerability assessment, high-fidelity route analysis, field of view, and line of sight. Rapid collection, processing, and visualization of complex urban environments will be accomplished in under 90 minutes. The Urban Recon was the first ACTD selected to receive transition funding from this newly established JCTD "transition program element" in FY 2006 due to the tremendous transformational capability it brings to the special operations warfighter. Urban Recon provides a 3-D imaging capability of an Urban environment to see, plan, and rehearse operations in near-real world setting. This project has high CoCom interest and therefore selected on its transformation merit for the JCTD transition funding. JCTD transition funding will enable this critical warfighter capability to continue its development while transitioning to a program of record. Outputs and efficiencies include: extent to which the Urban Recon ACTD sensors and software provide the high-resolution, 3-D data needed to support urban warfare operations; extent to which the equipment and software provided are easy to use and supportable by military personnel; and extent to which the Urban Recon Tactics, Techniques and Procedures (TTPs) can be effectively executed in meeting urban reconnaissance objectives. Urban Recon completed the objective laser systems development supporting vehicle-deployed, soldier-deployed, and UAV-deployed (surrogate vehicle) configurations. Finalized the CONOPS for each objective system configuration. Drafted and finalized a Capability Development Document for LIDAR Sensors. Completed the Military Utility Assessment (MUA). MUA results indicated that while the data produced was very useful, tools and sensors required additional work prior to fielding. Developed transition strategy supporting follow-on development, acquisition and fielding based on MUA results. Urban Recon will transfer to SOCOM. The user sponsor is U.S. Special Operations Command (SOCOM) through USASOC. The lead service is the National Geospatial-Intelligence Agency (NGA).

@@!• FY 2006 Output - Completed MUA. Developed plan to implement product improvements to bring laser systems closer to objective state. Provided continued system training and refinement of CONOPS, TTPs, and training packages.

@@!• FY 2007 Planned Output - Complete required capabilities documents (Capabilities Development Document, CDD, and/or Capabilities Production Document, CPD) for high-resolution terrain data acquisition and dissemination system to support programming activities. Complete the ACTD and transition to SOCOM.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
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Joint Distance Support and Response (JDSR)	0.000	2.070	0.000	0.000	
<p>The JROC approved the capability need for JDSR as an FY-02 new start. The outcome of JDSR will demonstrate and transition joint, common, interoperable, tele-maintenance environment using a collaborative knowledge center and tool suite, with reach-back capability. The JDSR ACTD focuses on timely employment of information, both automated and live, to the different service maintainers. Outputs and efficiencies include operational bandwidth in a common collaborative environment, access to multiple subject matter experts, technical information at point of maintenance, interoperable tool suites and maintainer productivity. Transition accomplishments to date: JDSR capabilities and products have transitioned to Navy's Distance Support Program for joint management and configuration control; the Navy and Marine Corps are procuring and fielding capability onto ships and Light Armored Vehicles (LAV) platforms. JDSR capability is fielded in the Air Force ATCALs system, Army CH-47, Marine Corps Third Echelon Test Sets (TETS). Planned transition will be to Distance Support (DS), Joint Aviation Technical Data Integration (JATDI), Integrated Maintenance Data System (IMDS), Third Echelon Test Set (TETS) and Technical Data Distribution (TEDD) programs. The User Sponsor is U. S. Joint Forces Command (JFCOM), the lead service is the Navy.</p> <ul style="list-style-type: none"> <li>• FY 2006 Output - Completed EUE. Finalized CONOPs, TTPs, training package and DOTML-PF recommendations. Continued transition of JDSR products to the POR. Established Joint JDSR Steering Group for post ACTD configuration management. Completed the JDSR ACTD.</li> </ul>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Language and Speech Exploitation Resources (LASER)	0.000	0.959	0.000	0.000	
<p>Demonstrate technologies, concepts, and architecture paths providing language translation capabilities with improved interoperability, accuracy, deployability and timeliness of translation for speech and document exploitation. Assessments include users within the sponsoring Pacific Command, as well as warfighters in other combatant commands and INSCOM with immediate and critical language translation needs in the Global War On Terrorism. Products from LASER have been deployed for operational use in OEF and OIF. The user sponsor is U.S. Pacific Command. LASER ACTD accomplishments - Conducted limited utility assessments on more language translation tools and a final capstone military utility assessment report. Provided machine language translation tool residuals in combatant command areas other than the sponsor's area of operations. Continued fielding interim products for demonstration and extended user evaluations in coalition and intelligence operations. Finalize concepts of operations and tactics, techniques and procedures for user adoption. Facilitated establishment of a machine language translation program and centralized management office. Begin implementation of transition plan and joint transition program.</p> <ul style="list-style-type: none"> <li>• FY 2006 Outcome - Conducted extended user evaluations during the residual phase. Continue modification to CONOPs and procedures for those language translation tools found to have utility. Complete LASER ACTD product transitions, interim capability support phase and end the ACTD. Complete the LASER ACTD.</li> </ul>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	
Active Denial System (ADS)	0.000	0.000	1.200	0.000	
<p>The Active Denial System (ADS) ACTD requires transition funding. This is a long range, directed energy technology that provides is 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 will not only provide the battlefield commander an important new option between the use of lethal force or taking no action, it will also demonstrate U.S. commitment to preventing unnecessary loss of life. Requests from the CENTCOM AOR for this capability for OIF/OEF forces have been received. Funding will be used to transition from the ADS ACTD to an ADS Program of Record.</p> <p>FY 08 Planned Output - conduct a technology assessment and a system requirements review for the next generation active denial system; Milestone B documentation development for future acquisitions; and preparation of a request for proposals, including holding one or more industry days to encourage competition.</p>					
Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009	

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Joint Force Projection (JFP)	0.000	0.000	0.760	0.000
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The Joint Requirements Oversight Council (JROC) validated the capability need for Joint Force Projection (JFP) as a Fiscal Year (FY) 2005 new start. The outcome of JFP 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% 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%); (5) Crisis Action Planning and Execution (after release of deployment order) support development and maintenance cycle for Operations Order (OPORD) and associated products. Cycle time reduction from 2 weeks to less than 96 hours. (6) Go from less than 5% of a capability in the current systems to 80% 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 US Joint Forces Command (USJFCOM), and the lead Service (Agency) is Defense Information Systems Agency (DISA).

- FY 2006 Output - Developed and demonstrated a portal linking together about 25% of Force Projection activities from initial planning and requirements for capabilities generation, through sourcing, movement, and delivery to the Joint Force Commander. Gained access to about 20% of the required authoritative data sources and developed initial data structures to link capabilities to forces and forces to capabilities. Focus was on visibility and integration of existing data through application of advanced net-centric web-technologies. Developed initial concept of operations (CONOPS).
- FY 2007 Planned Output - Finalize demonstration activities to complete the end-to-end Force Projection visibility capability.; conduct two Joint Military Utility Assessments (JMUA) and an Extended User Evaluation; and begin to transition and deliver the new Force Projection capability into program of record, Global Combat Support System. The Final JMUA is scheduled for 14 - 31 March, 2007. Complete the last two spirals of JFP ACTD deployment to include capabilities tracking throughout the deployment process and Joint Reception, Staging, Onward Movement, and Integration activities. 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. Complete the JFP ACTD.
- FY 2008 Planned Output - Provide documentation for NECC Capabilities Development Package (CDP). Provides initial transition funds to accomplish the Adaptive Planning Operational Capability module (OCM) to transition the JCTD from Developmental Piloting to NECC Operational Piloting.
- FY 2009 Planned Output - Provide for testing and documentation of the OCM, including net-ready certification to transition the OCM to full Operations in NECC. Efficiencies gained are the initial technical development of up to 25% of the capability requirements for the Force Projection mission capability package of NECC. JFP fully integrated (100% of the capability that passed Military Utility Assessment) into NECC baseline capability for Force Projection. Efficiencies gained are the completion of the testing and evaluation and the certification of capabilities for NECC up to two years ahead of the program.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Joint Modular Intermodal Distribution System (JMIDS)	0.000	0.000	1.000	0.000

The Joint Requirements Oversight Council (JROC) validated the capability need for JMIDS as an FY06 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.

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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 JMIDs tracked correctly, and overall improvement of situational awareness with use of AIT.

- FY 2008 Planned output - Complete final MUA Report. Commence 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 date is December 2008. Identify three spiral technologies that enhance JMIDS output. Exploit JMIDS success through a Coalition Warfare Demonstration of the JMIDS hardware with the United Kingdom that determines the value of JMIDS to coalition warfare logistics.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Hyperspectral Collection and Analysis System (HyCAS)

0.000

0.000

0.000

2.000

The Hyperspectral Collection and Analysis System (HyCAS) was validated by the JROC as an FY02 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 HAS 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 the global war on terror. 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 the 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. Funding was specifically earmarked in PDM III.

- FY09 Planned Output - 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.

**Accomplishment/Planned Program Title**

FY 2006

FY 2007

FY 2008

FY 2009

Counterintelligence, Human-intelligence Advanced Modernization Program - Intelligence Operations NOW (CHAMPION)

0.000

0.000

0.000

0.900

The Joint Requirements Oversight Council (JROC) validated the capability need for CHAMPION as a FY06 new start. The outcome will provide improved capabilities for the counter-intelligence, human-intelligence and special operations forces communities of interests an accessible and actionable information system for management of the CI/HUMINT/SOF collection, mission planning and asset

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management information. The capabilities include technologies for integration of biometrics and geospatial information. The primary outputs to be demonstrated to the users and evaluated in the Military Utility Assessment (MUA) are: 1) joint data standard for human domain; 2) CHAMPION information collection tool and associated CONOPs, and TTPs; 3) CI-HUMINT/SOF source management tools with federated search capability and data replication/access across multiple networks; and 4) integrated language translation collection, CI/HUMINT source vetting tool and data access tools for multi-intelligence discipline fusion. The efficiencies to be gained are: 1) improved effectiveness of HUMINT operations; 2) elimination of Human domain data stovepipes; 3) joint human domain data standard; 4) improved web enabled data access across multiple networks and security levels; 5) Joint CONOPs/ TTPs; 6) Biometric and geo-spatially enabled mission and asst management tools. The transition strategy is to incorporate CHAMPION capabilities into the Distributed Common Ground Station program of record (POR). The sponsoring Combatant Command (CoCom) is the U. S. Central Command (CENTCOM). Other organizations involved as participants, users of capabilities, and/or observers include USSOCOM, USJFCOM, Counter-Intelligence Field Activity, Defense Intelligence Agency, National Geospatial Agency, and the National Security Agency. The lead service is the Army.

FY 2006 Output - Identification of Counter-Intelligence, Human-Intelligence and special operations forces functional requirements document. Analysis of alternative technologies for the solution set. Plan Spiral 1 demonstration to assess critical operational issues. Coordinate planned POM funding of the deliverable by the program of record.

FY 2007 Planned Output - Complete Spiral 1 limited assessment report and Spiral 2 assessment plan. Execute the Spiral 2 demonstration and assessment of Spiral 2 deliverables. Prepare final assessment plan. Complete approval of transition plan. Secure funding for fielding of spiral deliverables found to have military utility by operational sponsor.

FY 2008 Planned Output - Execute final military utility assessment and finalize CONOPs and TTPs.

FY 2009 Planned Output - Planned project transition to Program of Record and project completion.

<b>Accomplishment/Planned Program Title</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
Coalition Secure Management and Operations System (COSMOS)	0.000	0.000	0.000	0.932

COSMOS will deliver and demonstrate information - based, information aware data sharing capability for use with Global War on Terror (GWOT) allies in coalition networks, which can reduce the physical equipment required for coalition connections and accelerate shared situational awareness and collaboration. The targeted transition is to the Multinational Information Sharing (MNIS) initiative. DISA will require financial assistance to bridge the integration and adoption of the COSMOS delivered technologies and capabilities into the CENTRIXS/MNIS environments.

The Joint Requirements Oversight Council (JROC) validated the capability need for COSMOS as a FY05 new start. The COSMOS ACTD output will be a pilot implementation of the Multilateral Interoperability Program (MIP) specifications for C2 data sharing (specifically the Command and Control Information Exchange Data Model (C2IEDM) and the Information Exchange Mechanism (IEM) in the Combined Enterprise Regional Information Exchange System (CENTRIXS) coalition network environment. COSMOS is planned for a final demonstration in the second quarter of FY08, with sustainment of the demonstrated capabilities by DISA through FY09. The expected output is identifying necessary and sufficient conditions for implementing the MIP specifications, leading to rapid, secure protected sharing of critical C2 information to and among coalition partners' organic command and control (C2) systems on a single and secure integrated coalition network. The expected efficiency is substantial reduction of textual message exchange required to establish and maintain situational awareness among coalition commanders, improved collaborative decision making, reduced confusion, uncertainty and delay in combat and crisis operations and effective bridging of coalition sourced information with US Global Information Grid (GIG) Network Centric Enterprise Services (NCES) for two-way information exchange, when approved cross domain solutions are available. Transition to programs of record is planned for FY09, targeted at the emerging Multinational Information Sharing (MNIS) initiative. A policy enforcement capability for discrete rapid information sharing will be implemented in enterprise and theater-level coalition networks (i.e., CENTRIXS migrating to an emerging program based on the Joint Requirements Oversight Council (JROC) approved Multinational Information Sharing (MNIS) Initial Capabilities Document (ICD)). The use of Open Source Code for software-based capabilities will enable improved capabilities to be inserted into programs of record for coalition information sharing, network services, and next generation command and control, including those of Allies and Coalition partners. COSMOS is a three year ACTD co-sponsored by U. S. Pacific Command (PACOM) and U. S. European Command (EUCOM). The Defense Information Systems Agency (DISA) is the lead agency.

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- FY 2006 output - The primary technical focus in FY06 was establishment of a MIP-compliant C2 application collaboration laboratory to interface exemplar C2 suites among participating partners. Through frequent technical exchanges and 'over-the-Internet' system interface testing between established and prototyped national C2 systems, the COSMOS technical team introduced the operational concept of "role- and policy-based protected information sharing" within US and coalition development efforts. A Security Working Group was established to address national concerns regarding information protection, co-led by US National Security Agency (NSA) and Canada. The operational management team observed USPACOM Exercise Cobra Gold '06 to establish understanding of the baseline information exchange capabilities. Planned demonstrations of interim capability were delayed by a lack of fieldable capability amongst the coalition partners. Since the foundational MIP exchange capabilities were not fully constituted, expected initial efficiency measures were not obtained. Programmatically the Management Plan was approved, and the governing project agreement between The Technical Cooperation Program (TCCP) Memorandum of Understanding (MOU) signatories was coordinated. Singapore joined the ACTD at the invitation of USPACOM.
- FY 2007 Planned Output - The technical focus for COSMOS in FY07 will be on establishing a stable and sustainable MIP specification based information exchange and demonstration of fundamental role- and policy-based sharing amongst coalition partners. US Army planned fielding of Army Battle Command System version 6.4 will provide the basis for technical implementation and assessment. Efficiency will be measured in coalition partner readiness and willingness to participate in MIP specification based information exchange, and improved network performance through reduced textual message exchange for C2 coordination. Coordinate transition of assessed capability to program of record.
- FY 2008 Planned Output - The final demonstration for Military Utility Assessment (MUA) in a USEUCOM venue is planned for the fourth quarter of FY08. Use of the foundational MIP specification based C2 information exchange between coalition partners able to implement the necessary and sufficient conditions and security solutions in stabilization and recovery operations will provide increased political confidence, technical experience and collaborative abilities. Programmatic focus in FY08 is FY10 budget documentation to successfully transition sustainment of the demonstrated capability to programs of record. DISA will sustain the demonstrated militarily useful functionality until transitions to programs of record in FY09.
- FY 2009 Planned Output: The primary focus of activities in FY09 is final documentation and transition of functionality to programs of record. The ACTD completes in FY09.

Accomplishment/Planned Program Title	FY 2006	FY 2007	FY 2008	FY 2009
Large Data	0.000	0.000	0.000	1.138

The Joint Requirements Oversight Council (JROC) validated the capability need for the Large Data (LD) Joint Capability Technology Demonstration (JCTD) as an FY-06 new start. The outcome of Large Data is to demonstrate the military utility of a highly scalable, rapid, and secure integrated capability to retrieve, store and share massive amounts of information effectively between global users. It will provide increased situational awareness by displaying large, fused sets of geospatially-referenced data in a Joint Warfighting context using intuitive navigation techniques. Large Data is a three-year project under the sponsorship of the United States Strategic Command. The primary outputs and efficiencies to be demonstrated in the JCTD Military Utility Assessment are: 1) Synchronized databases across all major operational storage nodes, i.e. cache coherency; 2) Timely delivery and sharing of data - instant real time access and collaboration; 3) Intuitive way for users to navigate large data sets (petabytes to exabytes); 4) Ability to easily visualize huge amounts of data that is being generated; 5) Capability to perform "trackback" or change analysis on an unprecedented scale. The user sponsor is the U. S. Strategic Command and the lead agencies are the National Geospatial Agency (NGA) and Defense Systems Agency (DISA). Transition is planned for FY 09 after successful JMUA to National Geospatial Agency (NGA) and Defense Systems Agency (DISA). Both agencies are participating in the JCTD as Co-Transition Managers. The Large Data JCTD is scheduled to complete in December 2008.

- FY 2006 Output - Spiral 1: Develop a large data fast file system, high performance search engine & distributed cache coherent database. Spiral 1: Design and demonstrate the Large Data 3 CONUS node prototype. Begin OC192 network certification of Enterprise Storage Network. Procure touch-based visualization and collaboration tool suite, develop CONOPS.
- FY 2007 Planned Output - Spiral 2: Develop holistic target characterization prototypes and deploy to USFK mini node. Add 4th CONUS node. Install Trans-PAC link. Develop capability for geotemporally indexed multi-agency data, with security, identity management, and Continuity of Operations features. Perform multi-node testing on classified and unclassified networks.
- FY 2008 - Planned Output - Provide large geospatial visualization displays and advanced data integration. Refine CONOPs and TTPs. Plan JMUA. Conduct demonstration in USFK and JEFX.
- FY 2009 - Planned Output - Transition selected modeules to DISA and NGA. Provides funding for testing, documentation and net-ready certification in compliance with NGA and DISA standards.

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<b>C. Other Program Funding Summary</b>		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Advanced Concept Technology Development (ACTD) RDT&E BA 3 line # 44		173.049	158.334	0.000	0.000	0.000	0.000	0.000	0.000	0.000	331.383
Joint Capability Technology Demonstration (JCTD) RDT&E BA3 Line#36		33.707	35.553	194.352	207.740	213.989	207.572	210.299	213.257	0.000	1316.469

Comment: In FY08 all ACTD funding transfers to the JCTD program. This will complete 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 table below. The PEs in the table (with the exception of the ACTD BA3 PE which will fully transfer to the JCTD BA3 PE in FY08) represent 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 ACTD/JCTDs that demonstrate the highest military utility will be 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. Promising ACTDs may receive transition funding during the transition period to the JCTD program. Beginning in FY07 all new starts will be 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 FY06, the National Geospatial-Intelligence (NGA) Urban Recon (UR) ACTD was the first successful example of utilizing the BA-4 funds to migrate capabilities to a program of record (POR). Urban Recon had completed a series of demonstrations and was entering into transition. The demonstrations indicated that the data products developed had significant military utility; however, the collection systems needed refinement. As similar collection systems are currently used in operations and would benefit from these refinements, Urban Recon was selected to be the first recipient of this transition funding, primarily due to the transformational nature of the data it provides. This funding will ensure Urban Recon concepts and products will transition and fill a vital capability gap required by the CoCom. Urban Recon is under the Program Management of USSOCOM.

In FY 2007-2010, there are several candidates for the transition bridge funds. The candidates are: Joint Distance Support and Response (JDSR); Joint Force Projection (JFP); Active Denial System (ADS); CI-HUMINT Advanced Modernization Program/Intelligence Operations (Champion); Language and Speech Exploitation Resources (LASER); Joint Modular Intermodal Distribution System (JMIDS); Hyperspectral Collection and Analysis System (HyCAS); Coalition Secure Management and Operations System (COSMOS); and Large Data.

The Joint Distance Support and Response (JDSR) ACTD is currently completing its demonstration phase and is entering into the transition phase of development. JDSR technology is demonstrating an extremely high military utility and is, therefore, the likely candidate for the use of the FY 2007 JCTD Transition funding. This funding will ensure JDSR transitions and fulfills a vital capability gap required by the CoCom. JDSR provides a joint, common and interoperable tele-maintenance/training environment providing end-to-end, low bandwidth reach

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back connectivity, customer relationship management, interoperable mobile computing devices, and case-based reasoning tools. JDSR is under the Configuration Management of the Navy.

Also in FY 07, the Language and Speech Exploitation Resources (LASER) requires funds to bridge a gap. This successful ACTD has products deployed in OIF and OEF. LASER provides the Combatant Commanders the capability to rapidly reduce the foreign language barrier across a full spectrum of DoD operations. Funds are needed to speed the transition into the SEQUOYAH program.

In FY08 there currently are two FY 2008 AC/JCTD candidates are under consideration for the JCTD transition funds. The candidates are the Active Denial System (ADS) which provides a long range, directed energy technology that provides is safe and effective non-lethal capability; and the Joint Modular Intermodal Distribution System (JMIDS) JCTD addresses technologies to overcome origin-to-destination cargo delivery challenges in the Defense Transportation System (DTS) and for all Services.

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). Also the Coalition Secure Management and Operations System (COSMOS) ACTD which will deliver and demonstrate information - based, information aware data sharing capability for use with Global War on Terror (GWOT) allies in coalition networks.

**E. Major Performers** Not Applicable.

## OSD RDT&amp;E COST ANALYSIS (R3)

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Urban Recon			2799	0	2-4Q	0	3-4Q	0	2-4Q	0	2799	0
JDSR			0	2000		0		0		0	2000	0
LASER			0	1029		0		0		0	1029	0
JFP			0	0	2-4Q	760		0		0	760	0
ADS			0	0	2-4Q	1200		0		0	1200	0
JMIDS			0	0	2-4Q	1000		0		0	1000	0
Large Data			0	0		0		1138	2-4Q	0	1138	0
Champion			0	0		0		900	2-4Q	0	900	0
COSMOS			0	0		0		932	2-4Q	0	932	0
HyCAS			0	0		0		2000	2-4Q	0	2000	0
Subtotal:			2799	3029		2960		4970		0	13758	0

Remarks: 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.

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In FY 2007-2010, there are several candidates for the transition bridge funds. The candidates are: Joint Distance Support and Response (JDSR); Joint Force Projection (JFP); Active Denial System (ADS); CI-HUMINT Advanced Modernization Program/Intelligence Operations (Champion); Language and Speech Exploitation Resources (LASER); Joint Modular Intermodal Distribution System (JMIDS); Hyperspectral Collection and Analysis System (HyCAS); Coalition Secure Management and Operations System (COSMOS); and Large Data.

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interoperable mobile computing devices, and case-based reasoning tools. JDSR is under the Configuration Management of the Navy.

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II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0									

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0									

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0									

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<b>Project Total Cost:</b>	2799	3029		2960		4970	0	13758	0