

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).

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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 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.

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<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.

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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.

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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.

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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>
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).

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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		

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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 Deniel 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

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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.

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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 Cocoms 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)				

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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)

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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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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 (JMMES)								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 critique 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

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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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