

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

February 2008

APPROPRIATION/ BUDGET ACTIVITY  
**RDTE, Defense Wide BA 03**

PE NUMBER AND TITLE  
**0603750D8Z - Advanced Concept Technology Demonstration (ACTD)**

COST (\$ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P523      Advanced Concept Technology Demonstration (ACTD)	158.313	1.589					

**A. Mission Description and Budget Item Justification:** The Department of Defense (DoD) initiated the Advanced Concept Technology Demonstration (ACTD) program in 1995 with the purpose of demonstrating new, mature technologies in an operational environment and the goal of getting new technology into the hands of the warfighter as quickly as possible. Early successes included the Predator and Global Hawk unmanned aerial vehicles (UAVs). As of year end FY06, DoD has started 150 ACTDs, a total of 70 ACTDs were in process, and 22 had been returned to the technology base or terminated. The program continues to demonstrate success in meeting urgent warfighter needs with 65 ACTDs contributing products that are/were employed in Operation Iraqi Freedom (OIF) and/or Operation Enduring Freedom (OEF). Some of these ACTDs are completing their operational demonstrations in a wartime environment. A non-exhaustive list of ACTDs deploying products to either OIF or OEF includes: Language and Speech Exploitation Resources (LASER), Expendable Unmanned Aerial Vehicle (XUAV), and the Joint Explosive Ordnance Disposal (JEOD) projects. The streamlined approach to ACTDs brings together technologists and military operators, who together insert advanced technologies into live demonstrations, evaluating their military utility in the field, while tailoring operational concepts and tactics, techniques, and procedures (TTPs) for warfighter employment.

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). FY 2006 was the first year of a three to five year transition period from the current ACTD to the improved JCTD program. However, in FY08 all ACTD funding is being transferred to the JCTD program to complete this transition more quickly than originally anticipated. Beginning in FY07 all new starts will be JCTDs. This will implement a process that will more rapidly provide demonstrated solutions to joint warfighter needs, and unique transformational capabilities through the application of new operational concepts or technology from the Science and Technology (S&T) domain. The resources are aimed at carrying successful projects through the difficult transition stage ("S&T valley of death"). The remaining ongoing ACTDs that were started in previous years but not yet complete will be funded to completion in the JCTD program element and will complete in two to three years. It is anticipated that all ongoing ACTDs will be complete by FY09. In FY 2007, 11 JCTD new start projects were initiated. To better support the rapid transition of joint, CoCom/coalition operational capabilities, the JCTD business model includes a JCTD Transition program element. While not all ACTDs and JCTDs require transition funding, these resources provide a "transition bridge" to enable sustainment for innovative, "joint-peculiar" and 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)

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APPROPRIATION/ BUDGET ACTIVITY  
**RDTE, Defense Wide BA 03**

PE NUMBER AND TITLE  
**0603750D8Z - Advanced Concept Technology Demonstration (ACTD)**

In FY 2006, DUSD(AS&C) shifted an initial allocation of resources (\$40 million) from the ACTD PE 0603750D8Z to populate three JCTD program element (PE)s. In FY08 all remaining ACTD resources have shifted into the JCTD BA 3 PE 0603648D8Z. This will initially establish a funding stream to support approximately five to ten new JCTDs each year. The BA-3 JCTD PE will replace the current ACTD BA-3 PE in FY08; The JCTD and remaining ACTD projects used the combined resources of both the JCTD and ACTD PEs in FY07. In FY08 and out any remaining ACTDs will be supported with funding from the JCTD PE until completion in the next two or three years. JCTDs are initiated in Budget Activity three (BA-3) and are pre-acquisition demonstrations, characterized by Technology Readiness Levels 4, 5 or 6. Although not fully developed for production, the new JCTD model can provide a path for transition of Science and Technology to acquisition and are low-to-moderate risk vehicles for pursuing those objectives. 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 the transition issues of supportability, maintainability and training identified by the JCTD/ACTD. As described, the JCTD Program has established a new model that enhances successful demonstrations with the addition of a transition arm through funding in the JCTD Transition BA4 program element (PE). The JCTD transition PE provides a path for rapid fielding of successful, transformational capabilities that may require additional transition resources to "bridge" to a program of record. To ensure successful capabilities transition to the CoCom this budget requests a shift of \$10 million in FY09 from the JCTD BA3 PE into the JCTD Transition BA4 PE. This shift will better balance the JCTD model and enhance the ability to fully transition the most compelling capabilities to the CoComs.

FY 2008/2009 General Program Plan: DUSD (AS&C) will maintain oversight of the JCTD program. No projects will be funded in the ACTD PE 0603750D8Z in FY 2008. The FY 2008 new start review and validation process began in March 2007, with JROC validation in June of 2007. Congressional notification of the FY 2008 new starts occurred in November 2007. There were eight "new start" JCTDs and five "rolling starts" proposed. Rolling start projects represent important warfighter concerns and potential capabilities that are not fully developed for initiation. However, to remain agile, because of the compelling capability a plan to start is derived if the development for starting is completed.

<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	162.201		
Current BES/President's Budget (FY 2009)	158.313	1.589	
Total Adjustments	-3.888	1.589	
Congressional Program Reductions			
Congressional Rescissions	-0.586	-0.011	
Congressional Increases		1.600	
Reprogrammings			
SBIR/STTR Transfer	-3.302		
Other			

In FY07 the ACTD program had congressional increases of \$9.8 million and a congressional decrease of \$5.0 million. The congressional increases funded the following enabling technologies: Processing Fuel Cell Components for Lightweight, Low Cost Transportation System; Special Operations Command Target Tracking and Knowledge Discovery

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System; Crossed-Field Radiation Technology (CFRT); Masking Shunt; and Spartan Advanced Composite Technology. There was a congressional reduction of \$5.0 million for "Reduction to New Start Projects". There were congressional rescissions of \$937 thousand for Section 8106 (1% reduction) and Section 8023 (FFRDC).

In FY08 the ACTD program had a congressional increase of \$1.6 million for operational/integration evaluation of the Power Dozer Side-Casting Technology. There were congressional rescissions of \$3K and \$8K for sections 8097 and 8104 respectively.

In FY08 and FY09 all ACTD funding is transferred to the JCTD Program (PE 0603648D8Z).

<u>C. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Joint Capability Technology Demonstration (JCTD) PE 0603648D8Z	35.594	202.484	206.337	201.975	195.537	198.276	201.211
Joint Capability Technology Demonstration (JCTD) Transition PE 0604648D8Z	3.029	2.934	14.962	18.911	18.886	19.917	19.959

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) 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 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. Any promising remaining 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 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
07	Selection focus					
07	Ability to spiral					

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APPROPRIATION/ BUDGET ACTIVITY		PE NUMBER AND TITLE				
<b>RDTE, Defense Wide BA 03</b>		<b>0603750D8Z - Advanced Concept Technology Demonstration (ACTD)</b>				
	technologies					
07	Independent assessment of the technology					
07	Adequately resourced projects					
07	Complete a final demonstration					
07	Number of successful capabilities transitioned					

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) Sprial 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.

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.

5) Military Utility Assessment (MUA)

- a. ACTD - MUA traditionally tied to a specific planned excercise for evaluation.
- b. JCTD - JCTDs not necessarily tied to an exercise. Greater flexibility to establish military utility via operational "real-world" demonstation or specifically designed test/venue.

6) Transition of Technology

- a. ACTD - 70% of ACTDs transition at lease one product to sustainment.
- b. JCTD - 80% of JCTDs transition at least 50% of their products to sustainment.

# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

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<b>APPROPRIATION/ BUDGET ACTIVITY</b> <b>RDTE, Defense Wide BA 03</b>		<b>PE NUMBER AND TITLE</b> <b>0603750D8Z - Advanced Concept Technology Demonstration</b> <b>(ACTD)</b>					<b>PROJECT</b> <b>P523</b>	
COST (\$ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
P523    Advanced Concept Technology Demonstration (ACTD)	158.313	1.589						

**A. Mission Description and Budget Item Justification:** The Department of Defense (DoD) initiated the Advanced Concept Technology Demonstration (ACTD) program in 1995 with the purpose of demonstrating new, mature technologies in an operational environment and the goal of getting new technology into the hands of the warfighter as quickly as possible. Early successes included the Predator and Global Hawk unmanned aerial vehicles (UAVs). As of year end FY07, DoD has started 160 ACTDs, a total of 57 ACTD/JCTDs were in process, and 22 had been returned to the technology base or terminated. The program continues to demonstrate success in meeting urgent warfighter needs with 65 ACTDs contributing products that are/were employed in Operation Iraqi Freedom (OIF) and/or Operation Enduring Freedom (OEF). Some of these ACTDs are completing their operational demonstrations in a wartime environment. A non-exhaustive list of ACTDs deploying products to either OIF or OEF includes: Language and Speech Exploitation Resources (LASER), Expendable Unmanned Aerial Vehicle (XUAV), and the Joint Explosive Ordnance Disposal (JEOD) projects. The streamlined approach to ACTDs brings together technologists and military operators, who together insert advanced technologies into live demonstrations, evaluating their military utility in the field, while tailoring operational concepts and tactics, techniques, and procedures (TTPs) for warfighter employment.

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- JCTD PE 0603648D8Z (RDT&E/DW BA-3)
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**B. Accomplishments/Planned Program:**

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Crossed Field Radiation Technology

3.200

Since 2006 Congress has provided additional resources for the Cross Field Radiation Technology (CFRT) project to explore antenna design concepts which may prove revolutionary in reducing antenna size and weight for possible application in manned and unmanned communications systems. The 2007 Congress had provided resources for CFRT in 2007. The expected outcome of CFRT is verification of antenna design concepts and limitations with respect to frequency band use, power versus range as a function of antenna pattern, and radio equipment interface characterization. CFRT efficiencies include performance measurements for comparison to existing antenna designs, manufacturability constraints for life cycle cost analysis, and power requirements and potential savings. While this enabling technology project is not yet directed at a specific Joint Capability Technology Demonstration, there are a number of low profile sensor and unmanned systems for which the technology may make a direct contribution if successful.

- FY 2007 Output: CRFT technical focus will be on performance measurements in field conditions for refined characterization of directivity and polarization; frequency response; linearity and harmonic distortion; and omni-directional radiation pattern analysis. Goals include further refinements to the prototype antenna design of a tunable antenna for application across a wider range of base radios. The design of the CFR antenna will continue to evolve in FY07 to designs for autonomous multi-sensor platform integration. Efficiencies will be measured in power required for given communications ranges or achievable bandwidth or throughput for digital communications. Programmatically, the technical team will use the results of the tests and field trials to identify potential projects or programs that may use the CRFT in future development spirals.

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<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Platform Test bed for Advanced Sensors (PTAS)		3.000		
<p>The JCTD program has a critical need for a medium-high altitude airborne platform test bed to support worldwide projects and demonstrations of various technologies ranging from scientific/experimental to operational/intelligence missions. NASA currently operates the sole remaining operational long-wing WB-57 aircraft. These aircraft have been determined useful to support the JCTD program as a demonstration platform of new technologies. The JCTD program will provide resources to NASA via the USAF using an Interagency Agreement. DUSD (AS&amp;C) will help establish mission requirements &amp; priorities, defining payload configurations, and the demonstration/testing schedule. NASA will provide maintenance support for the aircraft and engineering support for payload integration. The JCTD program estimates 200 flight hours will be required annually beginning in FY 2006. Support also includes use of hangar and office space for experiment planning/data processing.</p> <p>- FY 2007 Output - Approximately 200 planned flight hours for technology demonstrations and testing</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Processing Fuel Cell Components		3.000		
<p>These Congressionally added funds are being used to execute low cost integrated manufacturing processes being developed for the continuous processing of advanced components for fuel cells and fuel cell vehicles for military and civilian applications. Ongoing research has produced a manufacturing process for the significant reduction of mass production costs for fuel cell components, and for high performance light weight metal matrix composites for structural components for vehicle production. This initiative has the support of the US Army National Automotive Center, as well as commercial interests in the automotive and heavy trucking industries.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Special Operations Command Target Tracking		1.000		
<p>USSOCOM intelligence analysts face unique challenges in the prosecution and support of the Global War on Terror. Critical needs include the capability to positively identify and track leadership and key individual targets, pinpointing specific individuals that pose a threat. The global nature of the terrorist threat overwhelms current internal resources; improved capabilities to access key intelligence data at the operational level are needed; getting digital actionable data to operators on the ground.</p> <p>The US Special Operations Command (SOCOM) will demonstrate an advanced technology integration proof of concept under the Research and Development Experimental Collaboration (RDEC) program in support of SOCOM Special Operations Acquisition and Logistics Center (SOAL) Program Executive Office (PEO) _ Intelligence and Information Systems (SOAL-II), Program Manager (PM) for Reconnaissance and Surveillance (SOAL-II-RS). USSOCOM will integrate tag data from at least three tagging, tracking and locating (TT&amp;L) sources and two security classifications with additional data sources and when available and appropriate the Global Counter Terrorism Network (GCTN) and Global Sensor Network (GSN) Databases. This integration effort should result in the display of geo-located tracks linked between the TT&amp;L data. The tag data will be processed to combine attributes from the multiple sources into a superset of information with duplicate tag information correlated into one entity.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Masking Shunt		1.300		
<p>Masking Shunt provides a capability to hide Media Access Control (MAC) addresses. In computer networking a Media Access Control address (MAC address) is a unique identifier attached to most network adapters (NICs). It is a number that acts like a name for a particular network adapter, so, for example, the network cards (or built-in network adapters) in two different computers will have</p>				

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different names, or MAC addresses, as would an Ethernet adapter and a wireless adapter in the same computer, and as would multiple network cards in a router. SPAWARSSYSCEN Charleston, SC, Critical Infrastructure Protection Center, will use the funding provided to integrate the Masking Shunt into first responder and other networking environments to develop the concepts, procedures and protection profiles to use the Masking Shunt to increase security for wireless and other highly vulnerable networks. The expected integration, trial and implementation approach will be complete in FY 2007.				
<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Power Dozer Side-Casting Technology Operational/Integration Evaluation			1.589	
<p>The Power Dozer Side Casting Blade Technology is a mechanized earth moving system and is that of continuous loading and unloading of material. The Power Dozer Side Casting Blade Technology will be integrated on armored U.S. Military D8N and D7G dozers.</p> <p>The Power Dozer Side Casting Blade Technology has successfully demonstrated the ability to breach/clear assault lanes and wide area operations consisting of mines and heavy obstacles (tetrahedrons, hedgehogs, concrete jersey barriers, concrete cubes, concertina wire) on beach and inland approaches in a majority of soil types (from sand to extreme hardpack). The Power Dozer Side Casting Blade system consists of a standard cutting edge with teeth, a steel track laid on edge to form a belt around two vertical axis, two hydraulic motors directly driving two sprocket drives to propel the belt, powered by an auxiliary power unit (APU) mounted on the rear of the dozer.</p> <p>The Power Dozer Side Casting Blade Technology provides power directly to the steel belt actively removing soil from the blade before it accumulates to the point the platform stops its forward motion. The steel belt rotates around two vertical axis that brings soil from the cutting edge to the belt, removing and casting it to the side of the vehicle's (platform) path. (Mines and obstacles are swept aside with the soil.) The speed at which the belt side-casts the material is matched to the host platform's forward speed so material is continuously unloaded. The belt is also reversible. The Power Dozer Side Casting Blade Technology has produced results not previously attained within the mechanical mine clearance arena.</p> <p>In addition to mine and heavy obstacle clearance, the Power Dozer is capable of a 50% or greater enhanced productivity in earth moving tasks, protective berms, back filling, road building, side hill cuts, and general windrowing. The Power Dozer has the unique capability, as determined by mission requirements, of being able to be downsized or upsized to match various platforms</p> <p>FY 2008 Planned Output: Perform and operational and integration evaluation on this recently demonstrated technology.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Coalition Combat Identification (CCID)		7.200		
<p>The JROC approved the capability need for CCID as an FY01 new start. The outcome of CCID will demonstrate and transition CCID solutions that significantly reduce fratricide and enhance combat effectiveness of allied and coalition forces operating in both traditional and ad-hoc coalitions through the core ACTD, FY01-06 and Extension FY06-08. CCID addresses both Cooperative Target Identification (CTI) and Non-Cooperative (NCTI) technologies and systems focused on ground to ground and air to ground mission areas. The core ACTD culminated with the successful 2005 Operational Demonstration of CTI technologies / systems at Salisbury Plain Training Area, U.K. The objective of the Extension is to assess the coalition military utility (CMU) of the designated non-cooperative target identification (NCTI) technologies for coalition operations, and further inform U.S. and allied investment in the optimal CTI and NCTI combat identification</p>				

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capability. The CMU Assessment (CMUA) of technologies / systems will consider, as required, other relevant fielded or emerging devices in the Combat Identification-Blue Force Tracking/Joint Blue Force Situational Awareness (CID-BFT/JBFS) family of systems. The Extension Coalition Military Utility Assessment (CMUA) will focus on the NCTI technologies rather than systems that have been previously assessed or fielded in the core. The ACTDs output and efficiencies will be correctness of ID, time to ID, range to ID, enemy targets engaged, fratricide minimized and the impact on the tempo of operations, specifically, demonstrate interoperability of U.S., U.K., and French vehicle-to-vehicle time to ID of 3 seconds (threshold)/ 1 second (objective), and range to identification (ID) of 3 kilometer (km) (threshold)/5 km (objective); demonstrate rotary-wing-to-ground beyond-line-of-sight (BLOS) and forward observer/forward air Controller time to ID of 10 seconds (threshold)/3 seconds (objective) and range of 5 km (threshold) (15 km for BLOS) / 10 km (objective) (25 km for BLOS). The User Sponsor is the U. S. Joint Forces Command (JFCOM) and the lead service is the Air Force. The Transition Strategy will be via a two-pronged approach consisting of an Extended User Evaluation (EUE), and Follow-On Development, Production and Sustainment through the JSTARS and select fixed wing aircraft programs. The strategy builds on the currently approved CCID ACTD Transition Plan and Strategy.

- FY 2007 Output - Continue development of CONOP/TTP and training package. Complete technical tests and demonstrations. Conduct operational demonstration of optimal mix of CTI and NCTI technologies and systems. Planned NCTI technologies will be assessed at Exercise Bold Quest in September 2007. In FY08 the CCID ACTD will complete as it implements its transition plan including Extended Use of the residual package. The program will finalize CONOPs, TTPs and training package during this period.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Active Denial System (ADS)

0.300

The Joint Requirements Oversight Council (JROC) validated the capability need for ADS as an FY02 start. The outcome was to demonstrate a non-lethal, counter-personnel directed energy standoff weapon capable of producing non-lethal effects at ranges beyond effective small arms range. ADS functions by projecting a focused, speed-of-light millimeter-wave energy beam that induces an intolerable heating sensation on an adversary's skin, causing him to cease any military actions and be repelled without injury. The sensation immediately ceases when the individual moves out of the beam or when the system operator turns it off. Despite this sensation, the beam does not cause injury because of the shallow penetration depth of energy at this wavelength and the low energy levels applied. Thousands of shots involving hundreds of subjects resulted in no more than minor, transitory effects which never required long-term medical attention. The bio-effects of ADS were validated by the USAF Surgeon General and also by independent assessments by experts outside DOD. Operationally, ADS will enable our forces to stop, deter and turn back an advancing adversary without applying lethal force. The ADS ACTD produced a High Mobility Multi-purpose Wheeled Vehicle (HMMWV)-mounted field prototype and provided it to operational forces in all Services. The Services developed concepts of operations, and tactics, techniques and procedures for employing the ADS system, and they also evaluated its utility in representative military environments which included open terrain, urban environments and over water operations. In addition to rigorous bio-effects testing, the ADS HMMWV residual system successfully underwent weapons legal and treaty compliance reviews, and none identified any prohibitions to the employment. Outputs and efficiencies include: demonstrated adequate reliability and discrete support requirements over multiple 2-3 day periods; over a 12-16 month period, the system remained available over 25% of time and demonstrated the ability to be used effectively and safely; provided operators with a non-lethal counter personnel capability that out-ranges effective small-arms fire using directed energy from a mobile platform; extended the range of non-lethal capability over conventional non-lethal munitions greater than a factor of 10; lowered the probability of damage when compared to kinetic non-lethal munitions; performed line-of-sight targeting, and engaged targets at light speed, enabling high probability of hit. The Technical Manager for ADS is the USAF Research Laboratory at Kirtland, AFB, NM. The sponsoring Combatant Command is USJFCOM and the lead Service is the US Air Force. The Transition Manager is Electronic Systems Center (ESC), Hanscom AFB, MA (USAF).

- FY 2007 Output \_ The ADS ACTD was extended one year to continue the integration and testing of a second containerized, desert-hardened and armored ADS system. This truck-mounted, containerized, crew-armored and desert-hardened ADS System (System 2) is in development and scheduled for delivery in January, 2008. Additionally, the ACTD investigated the feasibility testing of a smaller, prototype 30 KW system. The ADS ACTD concluded on 30 Sep 07, and the System 1 residual was delivered to USAF 820th Security Forces Group for continuing field evaluation.

- FY 2008/2009 Planned Output \_ A transition effort will continue in FY2008 and FY2009 under an ADS \_bridge effort\_ funded by the Joint Non-Lethal Weapons Directorate (JNLWD). The primary focus is to promulgate ADS capability and to secure approved FY POM budgets in one or more Services in order to enter the formal acquisition process. As part of the transition effort, Air Combat Command is coordinating the AFROC approved ADS Capabilities Development Document with the other services and the Joint Staff.

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<b><u>Accomplishments/Planned Program Title:</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	
SPARTAN	2.100			
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for SPARTAN as a FY02 start. The outcome is to provide a modular, multi-mission, unmanned surface vehicle (USV) used to deploy sensors and weapons as low-cost force multipliers with integrated expeditionary sensor and weapon systems for use against asymmetric threats. The expanded range provides a layered defense, early warning/intercept capability for incoming threats, thereby improving protection of surface combatants, noncombatants, and other national and strategic assets. The user sponsor is U.S. Pacific Command whose Operational Manager is the U.S. Third Fleet, lead service is the U. S. Navy. The primary outputs to be demonstrated to the users and evaluated in the Military Utility Assessment (MUA) are 1) Conduct critical missions Antisubmarine Warfare (ASW); Mine Warfare (MIW); Intelligence, Surveillance, and Reconnaissance/Force Protection/precision Engagement (ISR/FP/PE); 2) Prepare the waterspace for Amphibious and Sealift Ops; and 3) Provide port-protection when launched/operated from shore. The efficiencies to be gained are 1) force multiplication using low-cost deployable sensors and weapons; 2) provide a symmetric response to asymmetric threats; 3) expanded range to provide for a reduced risk to personnel and capital assets during the conduct of dangerous missions. The Transition Strategy: The SPARTAN USV Command and Control system and Concept of Operation (CONOPS) will transition to the U.S. Navy Littoral Combat Ship (LCS) (PEO-LMW, PMW 420) Program of Record (POR) for the LCS USV. Transition is scheduled to begin with LCS Flight Zero, Ship number One production in January 2007.</p> <p>- FY 2007 Output - The ACTD continues Transition activity to U.S. Navy Littoral Combat Ship (LCS) (PEO-LMW, PMW 420) Program of Record (POR). The ACTD also completes a Residual support phase for the Singapore and French SPARTAN participants to include delivering the Singapore SPARTAN USV to Singapore. Additionally a \$1.3M congressional add was provided in FY 2007 through September 2008 to support the U.S. Navy in the application of advanced composite materials to improve performance and increase capability of mission payloads for SPARTAN and next generation Unmanned Surface Vessels.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	
Adaptive Joint C4ISR Node (AJCN)	0.800			
<p>The JROC approved the capability need for AJCN as an FY03 new start. The outcome of the AJCN ACTD is to develop, integrate, demonstrate and transition a multi-mission radio frequency system that provides seamless interoperable communications, simultaneously with signal intelligence (SIGINT), electronic warfare (EW), and information operations (IO) capabilities. Outputs and efficiencies include number of simultaneous missions and reconfigurable levels of security, mission reconfigurable timelines, and number of scalable architectures and compliant radio transmissions. Transition accomplishments to date are two AJCN ACTD multi-function test stations transitioned to the Joint Tactical Radio System Joint Program Office. The U. S. Joint Forces Command (JFCOM) is the User Sponsor and the lead service is US Army.</p> <p>- FY 2007 Output - Complete EUE of AJCN ACTD residual package. Finalize CONOPS/TTPs, training package and recommendations for Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF). Transition AJCN ACTD products to programs of record / programs. Complete AJCN ACTD.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	
Agile Rapid Global Combat Support (ARGCS)	0.800			
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for ARGCS as an FY-04 start which is using advanced technologies to demonstrate a family of testers for electronic components and provide unprecedented interoperability between weapon systems, Services, and levels of maintenance. This will reduce costs and the proliferation of testers while improving the availability and performance of weapon systems. In addition, ARGCS will demonstrate technologies to facilitate net-centric diagnostics by capturing historical logistics data and developing an expert support system that will further reduce repair times and costs, as well as future sparing requirements. Outputs and efficiencies will include increases in performance, test accuracy,</p>				

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interoperability, reduced logistics and weapon system support costs, and reduced proliferation of automatic test systems in the future. Technologies demonstrated will reduce the time to field new tester, a reduction in the time to diagnose and repair, a reduction in proliferation of test systems, and a reduction in the logistics footprint. The ARGCS technology will be transitioned to the Services through existing automated test programs of record. The user sponsor is U.S. Pacific Command and the lead service is the Navy.

FY 2007 Output - Completed systems integration and testing, and conducted a Limited Military Utility Assessment at the contractor\_s facility. Completed the Joint Military Utility Assessment in the summer of 2007 Finalized the Concept of Operations and transition planning

FY 2008 Planned Output: Refer to the JCTD R-2a

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Counter Bomb/ Counter Bomber (CB2)

0.500

The Joint Requirements Oversight Council (JROC) validated the capability need for CB2 as a FY03 new start. The outcome is to provide improved capabilities for military installations against the threat posed by terrorist delivered bombs and improvised explosive devices (IEDs). The capabilities include technologies for detection, identification, mitigation, and command/ control/ communications (C3); along with tactics, techniques, and procedures, and concepts for operations. The sponsoring CoComs are USSOUTHCOM and USEUCOM. Other organizations involved as participants, users of capabilities, and/or observers include USCENTCOM, Department of Homeland Security, and US Coast Guard. The lead service is the U. S. Navy. The primary outputs to be demonstrated to the users and evaluated in the Military Utility Assessment (MUA) are 1) ability to perform surveillance on the movements of people and vehicles near the installation as possible precursor to the threat, 2) detection and identification of the threat device prior to blast, 3) mitigation of the bomb, and 4) C3 to tie together the people, systems, and data critical to the accomplishment of the mission. The efficiencies to be gained are 1) the ability to perform an important and increasingly critical mission that had little priority until a few years ago, 2) the ability to perform that mission at little or no increase in manpower to military force protection organizations, 3) the ability to reduce the vulnerability and casualties of the force protection personnel while performing this dangerous mission. The transition strategy is to roll CB2 capabilities into existing programs of record (POR) and acquisition program elements of Service force protection projects, and also to utilize the J34 sponsored Combating Terrorism Readiness Initiative fund. User data packages for each of the systems will be developed, along with a users' guide on how to select and introduce new technology for force protection. Four critical products from this ACTD have already been deployed to Iraq: 1) van-mounted backscatter x-ray for vehicle inspection, 2) vehicle under carriage video inspection systems, 3) infra-red imaging system, and 4) off-leash trained canines for explosives detection. Transition plans will include program of records for Anti Terrorism/Force Protection acquisition agencies in each of the 3 services, GSA, and the J34 Combating Terrorism Readiness Initiative Fund.

- FY 2007 Output - Execute the final CB2 ACTD Spiral 3 demonstration at the Soto Cano HN, forward operating base. Initiate the Spiral 2 EUE at Naval Station Rota, Spain. Prepare Limited MUA reports and initiate EUE activities for Spiral 3 which will include a SOUTHCOM element and a EUCOM element. Initiate CMIED demonstration EUE activities. Initiate an analysis by the Defense Threat Reduction Agency (DTRA) of the quantitative improvement of introduction.

- FY 2008 Planned Outcome - Continue EUE and transition activities for all Spirals. Planned completion date is in FY 2009.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Foliage Penetration Synthetic Aperture Radar (FOPEN)(FOPEN/SAR)

1.100

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The Joint Requirements Oversight Council (JROC) validated the capability need for the Foliage Penetrating Radar (FOPEN) ACTD as an FY03 new start. The outcome of FOPEN is to provide 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 are 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. Such output goals are: 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 geolocate points of interest and targets to within 10 meters; to map concealed terrain and lines-of-communications at rates of 150 km<sup>2</sup>/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 ability to detect and locate relevant narco-terrorist related targets of interest with sufficient fidelity and timeliness to support military operations. The user sponsor is U.S. Southern Command 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 current transition strategy for FOPEN includes: funding to transition in limited quantities (estimated 2) to an unmanned aircraft system is in the Army FY2007 President's Budget. Currently, Predator B is 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).

- FY 2007 Output - Deployed to theater in support of MUA. Provide refined technical characteristics of an operational FOPEN radar system to the Army for transition to an Unmanned Aircraft System (FY 2007 Army New Start). Complete the FOPEN ACTD.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Urban Recon (UR)

0.300

The Joint Requirements Oversight Council validated the capability need for Urban Recon (UR) as an FY03 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. 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 the data was very useful and beneficial, some additional modifications to vehicle hardware and software were required 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 2007 Output - Completed 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 required program upgrades to satisfy MUA and conclude EUE OCONUS activity.

FY 2008 Planned Output: Complete the ACTD and complete transition of capabilities .

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<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Coalition Shared Intelligence Network Environment (COSINE)		0.100		
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for COSINE as a FY04 new start ACTD. The outcome will provide improved capabilities for coalition operations to share information across Community of Interests (COIs) in an ad hoc coalition member environment. COSINE enforces Need to Know or Need to Share rules by only publishing information to selected communities and preventing access to sensitive documents to members who are not authorized. The primary outputs to be demonstrated to the users and evaluated in the Military Utility Assessment (MUA) are: 1) ability to establish standards, concept of operations and associated tactics, techniques and procedures for sharing information products in NATO and non-NATO environments, while maintaining secure operations; 2) ability to quickly implement the connection of a secure coalition command, control and intelligence system; 3) ability to share intelligence information and coordinate with both allied and coalition partners in a timely secure manner, and 4) ability to rapidly alter the sharing environment when the operational situation changes, coalition membership changes or information release policies change. The efficiencies to be gained are 1) the ability to perform dynamic information security and management for sharing intelligence information in a dynamic coalition environment. The transition strategy is to implement the COSINE system design and standards into the ISAF (International Security Assistance Force) secret network for coalition operations in Afghanistan. COSINE is also a component of the NATO Intelligence Functional Area Service Capability Package as a broader NATO standard capability. The sponsoring Combatant Command (CoCom) is NATO Supreme Headquarters Allied Powers Europe (SHAPE). The lead agency is the NATO Command &amp; Control Consultation Agency. Other participants include Allied Command Operations and Allied Command Transformation.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Coalition Reception Staging & Onward Movement (CORSOM)		0.100		
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for CORSOM as an FY04 new start. The outcome of CORSOM is to demonstrate a set of technologies, provide modeling and simulation support, and establish procedures to provide Joint Force Commanders with an enhanced Reception, Staging and Onward-Movement (RSOM) Planning and Execution Monitoring capability for coalition deployment operations. The primary outputs and efficiencies to be realized by CORSOM ACTD deliverables are: 1) 10% percent decrease in delays of convoy movements caused by congestion, and as a result decreases in number of units that do not meet Required Delivery Dates 2)5% percent decrease in numbers of movement control personnel needed to manage RSOI efficiently; 3) 5% decrease in average time to offload strategic movement assets, move assets through marshalling areas, and on to staging areas; 4) comparison of total cost of RSOI when using CORSOM deliverables compared to current costs; 5) identification of reductions in logistics response times, i.e., reduced sustainability requirements, and reductions in losses in supply chain.</p> <p>Planned Transition: CORSOM products will transition into NATO's Logistics Functional Area Services (LOGFAS) with NATO Communications and Systems Operating and Support Agency providing operations and maintenance. Additional transition into Global Combat Control Systems (GCCS) through Defense Information Systems Agency (DISA) support is also planned. This is a four-year project under the sponsorship of six NATO nations, NATO Strategic Commands and Supreme Headquarters Allied Powers, Europe, are User Sponsors and the lead agency is the NATO C3 Agency.</p> <p>- FY 2007 Output - Completed transition to NATO Logistics Functional Area Services to include provision of required system documentation such as Data Dictionaries, Architecture Descriptions, User Documentation and Training Packages. CORSOM was used successfully in Exercises STEADFAST MOVE 07 and STEADFAST JACKPOT 07 to plan the RSOM portion of a NATO Response Force Deployment. CORSOM ACTD scheduled completion date is December 2007.</p>				

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**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Future Tactical Truck System (FTTS)

0.600

The Joint Requirements Oversight Council (JROC) validated the capability need for FTTS as an FY04 new start. The outcome of FTTS is to demonstrate new and emerging system capabilities for the Maneuver Sustainment Variant (MSV) and for the Utility Variant (UV) derived from Unit of Action concept drivers. The FTTS ACTD demonstrations will have the MSVs replacing two Heavy Expanded Mobility Tactical Truck Load Handling Systems in an Engineering Battalion and two UVs replacing High Mobility Multipurpose Wheeled Vehicles (HMMWV) in a Military Police (MP) Brigade. The demonstration aims to identify key elements of a seamless distribution system that has a reduced logistics footprint and reduced fuel dependency and supports both the current and future force. The primary outputs and efficiencies to be demonstrated in the ACTD Military Utility Assessment (MUA) are: 1) percent increase in fuel efficiency, and as a result increased operational range of up to 600 miles; 2) reduce Materiel Handling Equipment (MHE) from four to one and capable of transloading 463L pallets, flatracks, tankracks, other payloads (e.g. Non Line Of Sight-Container Launch Unit), and containers to/from the MSV, to another MSV, a MSV trailer, an aircraft, Theater Support Vehicle, and other Army and Navy watercraft, a flatdeck railcar, a semi-trailer, or the ground; 3) demonstrate on board exportable power of up to 75 kW; 4) demonstrate integral armor approach with capability to add up armor kit utilizing onboard MHE. Planned Transition Status: The FTTS ACTD is a critical piece of the Army's Tactical Wheeled Vehicle Transformation Strategy. Advanced technologies demonstrated in the ACTD may be incorporated into current and future tactical wheeled vehicles. In addition, PM Future Tactical Systems (FTS) (Provisional) is leveraging the FTTS ACTD to feed the requirements development process for the Joint Light Tactical Vehicle (JLTV). This is a four-year project under sponsorship of US Pacific Command (USPACOM), with completion of development and demonstration by end of FY 2007. The lead service is Army.

- FY 2007 Output - Completed hardware build and delivered 2 UVs with trailer and 1 MSV and Companion Trailer (CT) in November 2006. Completed safety assessment and operator training for the UVs and MSV. Final operational demonstrations of FTTS MSV and FTTS UV completed in 2nd Qtr FY07. Initiated transition strategy and preparation for extended user evaluation. Spiral Output Planned - Leverage results from FTTS MSV for potential upgrade to current medium/heavy tactical fleet. Provided operational assessment results from FTTS UV to PM Future Tactical Systems (FTS) which will feed the Joint Light Tactical Vehicle (JLTV) requirements document. MS B decision for JLTV is Nov 2007. Transition manager is PM FTS. FTTS ACTD scheduled completion date is September 2007.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Joint Unmanned Systems Common Control (JUSC2)

0.300

The JROC validated the capability need for JUSC2 as an FY04 new start. The desired outcome of JUSC2 is to provide a reconfigurable and scaleable common control architecture, capable of concurrently managing large numbers of unmanned systems of all types, leveraging interoperability afforded by existing joint and coalition interfaces and message sets for unmanned systems. The primary outputs and efficiencies to be demonstrated by this project include more efficient management and improved overall operational effect through: (1) the ability to concurrently manage (in some cases, control) all unmanned systems deployed with Littoral Combat Ship (LCS) mission packages; (2) demonstration of NATO STANAG 4586 (UAV Control Standard) Level 3/4 control handoff of STANAG enabled unmanned aircraft between Army and Navy control stations; and (3) demonstrate the ability to hand-off control of unmanned surface vehicles (USVs) and unmanned ground vehicles (UGVs) to other services' Joint Architecture for Unmanned Systems (JAUS)-compliant control stations. Current transition plans include: JUSC2's Unmanned Vehicle Common Control (UVCC) software product - an integral component of the Navy's Littoral Combat Ship Flight 0. JUSC2 Common Unmanned Aerial Vehicle (UAV) Interface Segment (STANAG 4586 compliant ground station) - now a transition product that the Army's UAV Project Office will insert into the One System Acquisition Program. The user sponsor is U.S. Joint Forces Command and the lead service is the Navy.

- FY 2007 Output - Due to now resolved funding delays, plan for and execute JMUA 2 (Border Patrol scenario - primarily unmanned aircraft based) in Feb-Mar 07. Plan for warfighting utility assessment with full at-sea test of LCS Flight 0 residual Sept-Oct 07.

- FY 2008 Planned Outcome - Complete residual final MUA activities. Complete reporting efforts; provide final engineering packages, software, and evaluation results to LCS program. Complete

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the ACTD.				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Joint Precision Airdrop System (JPADS)		1.400		
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for JPADS as an FY04 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 is a four-year project with completion of the Advanced Concept Technology Demonstration (ACTD) development and demonstration by end of FY 2008 transitioning 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) by FY 2008. 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.</p> <p>Planned Transition: Transition high-altitude, aircraft deployable, autonomous, airdrop systems, and in-flight mission planning with wireless communication to guidance, navigation, and control systems to USA PM-FSS and USAF PMs. Plan for and execute a potential rapid combat fielding of the residual 10K JPADS decelerator systems to Afghanistan and/or Iraq.</p> <p>- FY 2007 Output - Executed JMUA #2 rehearsal in December 2006, JMUA #2 in January 2007, JMUA #3 rehearsal in April 2007 and final operational demonstration, JMUA #3 in May 2007 based on US Joint Forces Command and user based scenarios. Continued to support and monitor residual system performance and user feedback during spiral technical development. Finalized USA and prepared USAF (Hardware) programs for Milestone B and planned System Development and Demonstration (SDD) programs. Finalized and executed interim transition plan in conjunction with formal JPADS 10Klb PORs. Conducted an interoperability test using Australian aircraft and forces.</p> <p>- FY 2008 Planned Output - Refer to the JCTD R2a.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Multi-Sensor Aerospace/Ground Joint ISR Interoperability Coalition (MAJIIC)		2.200		
<p>The JROC approved the capability need for MAJIIC as an FY04 new start. The outcome of MAJIIC is to develop, test and transition a set of standards, eXtensible Markup Language (XML) formats, and information services to promote intelligence, surveillance and reconnaissance (ISR) interoperability between U.S. and Coalition ground stations and systems. MAJIIC will demonstrate near-real-time interoperability of data from electro-optical, infrared, motion video, moving target indicators, synthetic aperture radar, and other sensors; enhance collaborative targeting operations; improve ISR data accessibility and sense making to support U.S. Joint ISR operations. Outputs and efficiencies include: 1) Near real-time MAJIIC ISR mission and sensor data is available for discovery and smart pull within the Collateral Space in near real time (i.e. Post in Parallel); 2) MAJIIC services and data are readily discoverable via portals, C2 Visualization and other applications, and other Global Information Grid (GIG) service providers; 3) MAJIIC data pedigree is trustable by users; 4) MAJIIC service access is assured for authorized users and denied for unauthorized users; 5) MAJIIC data access is provided based on user clearance, country affiliation, and role and protected from those not meeting the minimum policy requirements. Transition is planned for FY 2008 by</p>				

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**February 2008**

**APPROPRIATION/ BUDGET ACTIVITY**  
**RDTE, Defense Wide BA 03**

**PE NUMBER AND TITLE**  
**0603750D8Z - Advanced Concept Technology Demonstration**  
**(ACTD)**

**PROJECT**  
**P523**

the U.S. Army Training and Doctrine Command (TRADOC) System Manager to the Service Distributed Command Ground Station (DCGS) programs, to satisfy their requirements for coalition ISR interoperability and Network Centric Enterprise Services compatibility. Transition already Accomplished: The MAJIIC Full-Motion Video ISR Information Services (ISRIS) capability deployed as part of JIOC-I to OIF, and is transitioning to the Army Distributed Common Ground System (DCGS-A). NATO is deploying the MAJIIC coalition shared database (CSD) as part of the NATO Intelligence Management and Reporting Tool (IMART) to OEF. Remaining transition: NATO, Supreme Headquarters Allied PowerEurope (SHAPE), and the U.S. will adopt demonstrated capabilities and concepts of operation into existing national and coalition systems. MAJIIC technology and lessons learned will transition to the Service DCGS programs to satisfy their requirements for Coalition ISR interoperability and Network Centric Enterprise Services compatibility. U.S. Joint Forces Command is the operational sponsor and the Air Force is lead service.

- FY 2007 Output - Participate in the annual MAJIIC coalition exercise with possible NATO Allied Command transformation with NATO Air Group IV ISR capability. Validate CONOPs and conduct MUA. Transition capability into the DCGS Integration Backbone spiral baseline.

- FY 2008 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Psychological Operations Global Reach (PSYOP)

2.600

The USSOCOM led and sponsored PSYOP Global Reach Advanced Concept Technology Demonstration was funded and established to demonstrate and transition critical PSYOP technologies to programs of record in response to 2002 Defense Planning Guidance. The PGR ACTD will transform current PSYOP capabilities through the achievement of two major objectives: 1) extension of PSYOP product dissemination to reach target audiences in denied areas at a range up to 800 nautical miles, and 2) automation (software and hardware) of the PSYOP planning and analysis process. This ACTD will identify and assess fieldable solutions to enable the transformation of joint PSYOP by improving capabilities to disseminate information multi-dimensionally across extended ranges into denied areas, and improving PSYOP planning and analytical capability through technologies that are integrated into SOF planning systems. The PSYOP planning and assessment tools will include populace analysis, audience targeting, theme development, media and product selection, distribution and dissemination, and results analysis. Overarching outputs include: long-range PSYOP product dissemination; a digitally automated systems of systems for PSYOP planning and analysis; and the development of PSYOP scatterable media capabilities that are currently unavailable to the war fighters. These activities incorporate a variety of initiatives such as generic pod development for integration of AM, FM, and TV transmitters on-board Predator-type Unmanned Aircraft Systems, and digitizing of PSYOP planning and analytical capabilities through technologies that are integrated into the SOF net centric environment. Measures of performance/success for long-range dissemination include: distances (CONUS to OCONUS and/or transnational), ability to penetrate denied areas, ability to continuously operate/disseminate in denied areas, and dispersion area of a message in urban and rural areas. Planning and analysis collaborative tools may be measured by: rapid identification of the proper target audience and cultural message, measurement of message dispersion via various media, measurement of message reception by the target audience, measurement of effectiveness and speed of planning through approval, production, and dissemination collaborative tools, and ability to leverage other pertinent data sources. Quantitative metrics will be validated by the Joint Integration Test Command. Joint Service interoperability will be applied across all technologies.

FY 2007 Output: Continued management of the incremental design, engineering, and technical integration of multiple technologies as the variants became more robust. Planned and conducted events included: developing scatterable media and advanced broadcast payloads to support deployment on Predator type UAS platforms; conducting a Technical Demonstration (TD) of a ground launched tethered balloon FM broadcast payload, an AM broadcast payload, Wind Supported Aerial Delivery System (WSADS) UAV FM broadcast payload, and WSADS UAS loudspeaker broadcast payload; transition of the WSADS FM broadcast payload; performing a TD on R-22 Maverick UAS loudspeaker broadcast payload and Air Deployable Media Device; executing technical and operational demonstrations of the POPAS and PSYOP Situational Awareness System (PSAS); and continuing SBIR projects for antenna development and POPAS related software. These efforts will culminate in further technical demonstrations, operational demonstrations, military utility assessments, and extended user evaluations.

FY 2008 Planned Output: Continue the development and demonstration of advanced broadcast payloads for deployment on Predator/Extended Range Multi-Purpose (ERMP) and other Unmanned Aircraft Systems (UASs), to include AM, FM, and TV broadcast systems. Transition aerial loudspeaker broadcast payloads for deployment on UAS. Transition tethered balloon FM broadcast

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payload\_s residual. Continue the development and demonstration of scatterable loudspeaker systems and Air Deployable Media Device to support transition. Further execute SBIR projects for FM/TV antenna and the POPAS related Cultural Intelligence Wiki-berry System. Continue POPAS and PSAS development, demonstration, evaluation, incremental fielding, and transition of residual software/hardware. Conduct a consolidated Military Utility Assessment for the SLS, ADMD, POPAS, and PSAS at Ft. Bragg, NC. Transition capabilities with immediate military utility. Refine Concept of Operations and Tactics, Techniques, and Procedures.

FY 2009 Planned Output: Execute further development, demonstration, and perform evaluations for the AM, FM, and TV broadcast payloads to support deployment on Predator/ Extended Range Multi-Purpose (ERMP) type Unmanned Aircraft System (UAS) platforms. Transition scatterable media to include: scatterable loudspeaker broadcast systems and electronic leaflet systems (ADMD). Perform further development, demonstration, and evaluations of SBIR FM/TV antenna and POPAS related software technologies. Transition remaining software/hardware for POPAS and PSAS systems. The transition of residuals with a focus on Milestone B will be completed by the ACTD as it conducts close-out procedures and fully integrates with USSOCOM Special Operations Acquisition and Logistics-Intelligence and Information/Program Manager Psychological Operations (SOAL-PEO-II/PMP).

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Theater Effects-Based Operations (TEBO)

5.100

The Joint Requirements Oversight Council (JROC) validated the capability need for the TEBO ACTD as a new start in FY 04. The outcome of the TEBO ACTD is to provide Combatant Commanders 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 Pacific Command 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 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.

- FY 2007 Output - Conduct Operational Demonstration 4 (Reception, Staging, Onward Movement and Integration (RSOI) 07 and Ulchi Focus Lens (UFL) 07) Enhance and integrate COA planning capabilities and EBO execution enabling capabilities into CFC architectures ; enhance and transition ONA capabilities into other COCOMs for use; enhance and integrate DA capabilities into CFC architectures.

FY 2008/2009 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Actionable Situational Awareness Pull (ASAP)

0.600

The JROC approved the capability need for ASAP as an FY05 new start. The ASAP output will develop, integrate, demonstrate and transition software that provides a "Smart Pull" capability to the tactical, operational and / or strategic user on the Global Information Grid (GIG) for accessing critical situation awareness information resident on distributed databases. Utilizing the Net-Centric Enterprise Services (NCES) core service architecture and the Net-Enabled Command Capability (NECC), a "Smart Pull" service will be operationally demonstrated and transitioned into NECC and

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the Integrated Broadcast System (IBS). ASAP's outputs and efficiencies include (1) increased percentage of useable data available to the user, (2) increased performance through decreased latency of data, (3) percentage of increase in data obtained via "pull" vice "push" procedures, and (4) increased interoperability with coalition forces by use of XML Common Message Format Standards. Expected efficiencies (to be measured and verified) will include response time performance on the return of data as a web service. Planned Transition: Software tools and documentation will transition to Net-Enabled Command Capability (NECC) and the Integrated Broadcast System (IBS) starting in FY 2007. The ASAP User Sponsor is the U. S. Pacific Command (PACOM) and the lead service/agency is the Defense Information Systems Agency (DISA).

- FY 2007 Output - Complete Operational Demonstrations and JMUA. Initiate Extended User Evaluation of ASAP ACTD residual package. Initiate finalization of CONOPs / TTPs, training package and recommendations for Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF). Transition ASAP ACTD products to programs of record / programs pending results of JMUA.

- FY 2008 Planned Output - Refer to the JCTD R-2a.

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
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Coalition Secure Management and Operations System (COSMOS)

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.

- FY 2007 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 among coalition partners. US Army planned fielding of Army Battle Command.

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
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CBRN Unmanned Ground Reconnaissance (CUGR)

The Joint Requirements Oversight Council (JROC) validated the capability need for CUGR as an FY05 new start. The outcome of CUGR is to provide manned nuclear, biological and chemical (NBC) reconnaissance units with two new technology applications to be demonstrated in the Joint Service Light NBC Reconnaissance System's (JSLNBCRS) High Mobility Multipurpose Wheeled Vehicle (HMMWV) variant providing an unmanned capability. The first of these new systems (Thrust One) will replace the Double Wheel Sampling System (DWSS), currently in use, with a mobile Mass Spectrometer, using RAMAN technology. Since the DWSS can only be used when the vehicle is moving at a fast walk, replacing it with the RAMAN detector, which is producing reliable results at maximum vehicle speed, greatly increases mobility and flexibility for these units. The second technology (Thrust Two) is the incorporation of a small, remote controlled, sensor-equipped robot to be the recon crew's "point man" in high risk contamination reconnaissance. The efficiency of CUGR will be to utilize a machine rather than put a soldier at risk. CUGR addresses

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the capability gaps identified in the CBRN Baseline Capability Assessment, the JRO-CBRN Defense Mobilization Plan, and the supporting JCIDS Functional Area Analysis. Thrust One will transition as part of the Reconnaissance and Platform integration sensor block upgrade program and replace DWSS on Stryker, HMMWV and LAV vehicles. Thrust Two will become part of the Joint CBRN Dismountable Reconnaissance System (JCDRS). DTRA provides overarching program management. The Technical Manager is the U.S. Army Research, Development and Engineering Command's Edgewood Chemical and Biological Center. The Joint Program Executive Office for CBD assigned the Joint Product Manager for NBC Reconnaissance as the Transition Manager. The U.S. Pacific Command is the ACTD sponsor with Operational Manager responsibility with the U.S. Army Pacific who is providing the 95th Chemical Company as the ACTD demonstration unit. ACTD will complete in FY 07. Outputs will be: to increase maneuver speed to 45 kph vice 11-22 kph; allow detection/identification of various classes of substances simultaneously vice one at a time; reduce mission consumables; enable reconnaissance into areas that otherwise would be inaccessible by manned vehicles; can be deployed into hazardous environments; offer a point detection capability; and provide the ability to collect liquid, solid and aerosol samples.

- FY 2007 Output - Refer to the ACTD R2a.

- FY 2008 Planned Output - Provide two JCSD equipped CBRN Reconnaissance platforms and 2 CUGR's for residual phase support to the 95th Chemical Company (CMLCO) and initiate Extended User Evaluation. Complete mounted CUGV system design and integration on the third JSLNBCRS. Conduct mounted CUGV early user assessment. Complete CUGV test methodology development as well as the technical manual and user training plan. Conduct mounted CUGV technical and operational demonstrations. Receive integrated system and complete the ACTD. Develop documentation and planning for Thrust One installation and transition to Stryker vehicle (new request from U.S. Army).

**Accomplishments/Planned Program Title:**

Gunship Standoff Precision Munition (Danger Close CAS - Viper Strike)

FY 2007

FY 2008

FY 2009

6.400

The Joint Requirements Oversight Council (JROC) validated the need for Standoff Precision Guided Munitions (SOPGM) capabilities as a FY05 new start. The outcome of the SOPGM ACTD is to evaluate the military utility of adding precision guided munitions capability to the AC-130 gunship armament suite. The assessment will be based on ground and flight demonstrations of a SOPGM weapon system employed from an AC-130 against representative gunship targets. Outputs for this project include: Initial Proof-of-Concept (IPOC) of the SOPGM weapon system and an interim Military Utility Assessment (MUA). The SOPGM IPOC weapon system will include a variant of the Viper Strike munition demonstrated on the Hunter Unmanned Aerial Vehicle, a battle management system (BMS) being developed as part of the ACTD, and physical, functional, and communications interfaces to integrate the munition and BMS to safely and effectively employ the munition. The Viper Strike munition will be modified to incorporate GPS aiding of its inertial navigation system to maintain accuracy over longer flight times. The BMS development will leverage technology developed for the Navy's Naval Fire Control system to provide operators with engagement zones and fire control for employing the munition in top attack scenarios. The IPOC SOPGM weapon system will be demonstrated through ground and flight test and deployed OCONUS in an extended user evaluation to demonstrate the potential military utility of providing the gunship with a precision guided munition capability. Outputs and efficiencies: Modify the Viper Strike munition to integrate GPS and improved warhead lethality to enhance target effects and facilitate man-in-the-loop control throughout the kill chain. Demonstrate sub-meter Circular Error Probable from 10-50 kilometer standoff ranges against moving and stationary targets within the Gunship target set with terminal guidance provided by the launch aircraft, ground teams and/or Unmanned Aerial Vehicles (UAVs). Demonstrate ability to accept and act on digital fire commands against multiple targets nearly simultaneously. Demonstrate ability to conduct attack profiles with varied avenues of approach suitable for targets in all terrain including urban environments. The Combatant Command/User Sponsor is U.S. Special Operations Command (SOCOM) and the lead service/agency is also SOCOM.

- FY 2007 Output - Planned transition: Software and hardware configurations were finalized for first ship installation and initial flight tests, but GWOT OPTEMPO for the AC-130 prevented further work on that Mission Design Series host platform. Hardware and software were rehosted on a surrogate aircraft and flight test commenced late in FY 2007.

- FY 2008 Output - Successfully completed weapon and battle management system flight tests on the surrogate host platform. Residual capabilities transitioning to SOCOM SOAL PEO Fixed Wing.

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**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Epidemic Outbreak Surveillance (EOS)

8.900

The Joint Requirements Oversight Council (JROC) validated the capability need for EOS as an FY 2005 start. The outcome of EOS is to demonstrate and transition solutions that are transformational dual use for operational and clinical medicine as well as bio-defense. EOS will incorporate as series of technologies to rapidly detect and identify a wide range of respiratory pathogens that are frequently and easily confuse in clinical encounters. It is intended to overcome two diagnostic challenges: 1) discrimination between diverse pathogens that present similar (i.e. fever & flu-like) symptoms; and 2) screening rapidly, accurately and simultaneously across multiple (20 - 30+) candidate pathogens. Clinically, a practitioner, if faced with 100 cases of flu will assume you also have the flu if you exhibit the same symptoms. EOS will ensure a correct diagnosis more quickly while running a series of pathogen tests in the background to look for biological attack. The overall goal is to develop a business case that makes the technology affordable for and integrated into the command structure for both routine and wartime scenarios. EOS will leverage sophisticated, advanced molecular biology procedures, bio-informatics, micro array and/or RT-PCR - based technologies integrating into medical command channels to provide all leadership levels key information needed to make time-critical decisions. Ultimately this situational awareness provides a high likelihood that correct diagnostic decisions will be made, potentially even prior to the onset of symptoms in some scenarios. In detect-to-warn and detect-to-treat applications, the EOS diagnostic supports sustainment of warfighter capabilities in biologically active domains by promoting earlier and targeted diagnosis, intervention, minimizing casualty losses, and reducing mission degradation. The first spiral of EOS has begun with the initiation of an avian flu (H5N1) warning network to established at 22 USAF sites worldwide. This system should be operational by the Fall, CY-2006, in time for the next flu season. DUSD/AS&C, USJFCOM (warfighter), AF/SG (technical manager), and JPEO/CBD (transition manager) are the principals for this ACTD. The ACTD will end in FY2008. Outputs and Efficiencies: Viral/Bacterial Agents per Chip Assay - 100 vice 20; Total Cycle Time per Individual Assay - 2 hours vice 8; Approximate Cost per Assay - \$40 vice \$500; Portability of Fully Capable System - 40 pounds vice 500; Rapid ID of Bio Agents vs. Backgrounds - 2 hours vice 1 day; Forensic Attribution of Agent Strains - days vice months; contain Outbreak and Reconstitute Forces - 2 days vice weeks.

- FY 2007 Output - Completed analysis of alternatives for technical solution; completed assessment of Avian Influenza demonstration; established avian influenza Silent Guardian kiosks at multiple military bases.

- FY 2008 Planned Output- Refer to the JCTD R2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Joint Coordinated Real-Time Engagement (JCRE)

2.600

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 COCOMS. 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: % of relevant data that is properly synchronized; % of global operation centers that have Synchronization awareness; % of synchronization problems that go undetected for > 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 Navy and the lead CoComs are U.S. Strategic Command and U.S. Special Operations Commands.

- FY 2007 Output - Demonstration #3. (Fall 2007) 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 will be performed in conjunction with the final demonstration. Demonstration goals may be changed based on Operational Manager's direction.

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FY 2008 Planned Output - Refer to the JCTD R-2a.				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Joint Force Projection (JFP)		3,900		
<p>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 (NECC) 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%.</p> <p>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).</p> <p>- FY 2007 Output - Finalized demonstration activities to complete the end-to-end Force Projection visibility capability; conducted two Joint Military Utility Assessments (JMUA) and an Extended User Evaluation; and began to transition to deliver the new Force Projection capability into program of record Net-Enabled Command and Control (NECC). Conducted final JMUA in March 2007. Completed 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. Installed JFP in the Joint Staff Support Center (JSSC) as an application until Net-Enabled Command Capability achieves its Milestone B.</p> <p>- FY 2008 Planned Output: Refer to the JCTD R2a.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Medical Situational Awareness in Theater (MSAT)		1,900		
<p>The Joint Requirements Oversight Council (JROC) validated the capability need for MSAT as a FY05 new start. The outcome is to provide improved capabilities for medical situational awareness to commanders with integrated and timely health information fused with non-medical operational information incorporating a tailored decision support tool to make critical strategic and tactical decisions in a deployed environment. This capability will provide a fusion of medical data, personnel location information and health threat intelligence for situational awareness in theater. The capabilities include technologies for a web services environment fusing intelligence, chem.-bio threat, environmental health, unit location information; risk assessment; and decision support tools.</p>				

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The primary outputs to be demonstrated to the users and evaluated in the Military Utility Assessment (MUA) are 1) ability to perform surveillance of medical threats in deployed environments, 2) model threat dynamics, and 3) conduct risk assessment using decision support tools. The efficiencies to be gained are 1) the ability to provide commanders with a more complete medical situational awareness in an actionable time-frame, 2) the ability to make knowledge-based decisions with an automated decision-making tool tailored to medical operations. The transition strategy is to incorporate MSAT system tools and operational concepts, tactics, techniques and procedures into theater medical operations through GCSS (Global Combat Support System) and Theater Medical Information Program programs of record. The sponsoring Combatant Command (CoCom) is U. S. Pacific Command (PACOM). Other organizations involved as participants, users of capabilities, and/or observers include: Armed Forces Medical Intelligence Center; OSD Health Affairs; Joint Staff Surgeon and the Defense Information Systems Agency. The executive agent is the Joint Staff, Logistics Directorate, Health Services and OSD Health Affairs.

- FY 2007 Output - Project restructured to accommodate alternative solution set, new partners and funding sources. Approved amendment to implementation directive. Revised requirements plan and began new development contract. Prepared new assessment plan.

FY 2008 Planned Output - Refer to the JCTD R2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Rapid Airborne Reporting & Exploitation (RARE)

0.400

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 will include documented capabilities to produce special measurements from the U-2 SYERS-2 and the Global Hawk ISS platforms / sensors. The RARE ACTDJMUA was completed in FY07 and is planned for transition into the U-2, Global Hawk and AF DCGS Programs of Record. The primary efficiency and output to be demonstrated is an increased number and value of 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 will begin transition to AF DCGS, U-2 and Global Hawk programs. The RARE capability will transition to the REAPIR/SOCET software packages and be incorporated into the concept of operations of the Senior Year Electro-Optical Reconnaissance System-2 and Global Hawk sensor systems. The ACTD will also deliver documentation/lessons learned to enable capability for other airborne platforms. The lead service is the U.S. Air Force, and the ACTD user sponsor is U. S. Central Command (CENTCOM). The Transition Manager is ACC/A2.

- FY 2007 Output - Completed system performance characterization and formal exploitation software package. Identified and coordinated requirements and requested funding to support transition of capabilities to Programs of Record. Continued beta operational support at NASIC, including identification and solution of data format and transmission problems not previously expected. Successfully conducted the concluding Joint Military Utility Assessment with participation from CENTCOM and AF DCGS.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Sea Eagle

1.000

The Joint Requirements Oversight Council (JROC) validated the capability need for Sea Eagle as an FY 2005 start. The outcome of Sea Eagle will be to demonstrate and transition technologies to provide persistent, clandestine, and unattended monitoring of maritime areas in a Special Operations Forces (SOF) deliverable "system of systems". These sensors and systems will be deliverable by SOF and networked in a multi-media (sea, air, land) system-of-systems approach. Sea Eagle will greatly increase SOF's ability to clandestinely conduct persistent, intrusive Intelligence, Surveillance, and Reconnaissance (ISR) in maritime areas. The war fighter will tactically emplace Sea Eagle systems to provide targeted, tactical information that complements national and theater intelligence assets to enable a layered intelligence collection strategy. These funds will be used to support technical down-select, systems integration, and demonstrations of sensors and communication technologies. The funds will support: 1. Johns Hopkins University Applied Physics Lab (JHU APL) and Naval Surface Warfare Center Panama City (NSWC PC) as the technical integrators for Sea Eagle; 2. Operational Manager support and demonstration costs; and 3. Procurement and integration of components for the demonstrations. Outputs and Efficiencies: The

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overarching output for Sea Eagle is persistence. This output incorporates a variety of initiatives such as power management, intelligent triggering, and signal discrimination to optimize system performance and persistence. Measures of persistence will be relevant for individual component, subsystem, and overall system performance. Quantitative metrics are classified. USSOCOM is the COCOM/User Sponsor; Navy is the Lead Service.

FY 2007 Accomplishments: Sea Eagle Management Plan signed and Security Classification Guide approved. Incorporated underwater communications and sensors into a clandestine, close access, mesh network. Cross environment connectivity between Land and Maritime system components was demonstrated in June 2007 proving the "concept" of the ACTD.

FY 2008 Planned Output: Sea Eagle Transition Plan signed. Draft CDD finalized and Technology Transition Agreement socialized. Incorporate underwater communications and sensors into a clandestine, close access, ad-hoc, self-healing mesh network. Demonstrate the undersea network and sensors in Q2 FY08. Conduct final Military Utility Assessment of the entire Sea Eagle network Q3 FY08. Upgrade land network protocol and integrated additional land sensors. Transition capabilities with immediate military utility. Refine CONOPS and TTPs.

FY 2009 Planned Output: The Transition/Residual Period will be conducted and the ACTD will complete with transition to the SOCOM Global Sensor Network (GSN) POR by the end of the FY.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

SOF Long Endurance Demonstrator (SLED)

5.100

The JROC validated the capability need for SLED as an FY05 new start. The outcome of SLED is to demonstrate an unmanned vertical take off and landing vehicle (the DARPA developed A160 Hummingbird VTOL UAV) capable of flying long range (2000+NM/24+ hours) and employing a wide variety of adaptable payloads, supporting combating terrorism (CT), counter proliferation (CP), special reconnaissance (SR), direct action (DA), psychological operations (PSYOP), and other mission areas. Efficiencies and outputs will evaluate the A160 for its capability to perform designated functions. Platform performance must be compatible with payload and mission requirements in terms of altitude, endurance, range, weight (platform and payload), and payload power. The payloads must meet mission requirements and be compatible with A-160 capabilities and constraints. Planned Transition is to integrate with USSOCOM components.

U.S. Special Operations Command is the user sponsor and lead agency.

- FY 2007 Output - Completed CONOPs development. Selected and demonstrated representative support payloads, such as SAR/GMTI, SIGINT, Comm Relay, and EPR. Demonstrated Hellfire on A-160. Developed slide on/slide off payload capability. Plan and perform final MUA. Final MUA activities may slip to first quarter FY 08 as a result of DARPA FY06 grounding and re-certification activity for A160.

FY 2008 Planned Outputs Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Tactical Satellite (TacSat)-2 (Road-Runner)

1.500

The Joint Requirements Oversight Council (JROC) validated the capability need for Tactical Satellite (TacSat)-2 as an FY05 start. The outcome of TacSat-2 is to demonstrate use of responsive, flexible and affordable tactical satellites to retain a space capabilities advantage in high threat environments and the concepts for dynamic theater tasking, high-rate theater downlinks and horizontal integration of space derived information via SIPRNET. It will demonstrate on-demand, cost-effective augmentation of space forces. Capabilities will be tailored to specific and emerging crises and use the latest, high-payoff technologies to avoid surprise and counter terrestrial and space threats. These attributes help rapidly reconstitute destroyed or degraded space capabilities to continue military action. TacSat-2 will be Internet Protocol addressable and function as a node within a network-centric architecture. Warfighters with Secret Internet Protocol Router Network access can task the satellite's sensors for geo-rectified signals information and one-meter resolution visible imagery on areas of interest. Outputs and efficiencies are: Spacecraft launch site arrival to launch - objective: 7 days, threshold: 14 days. Autonomous rapid on-orbit spacecraft and payload checkout and initialization - objective: 24 hours, threshold: 72 hours. Payload downlink data rate - objective: 274 Mbps, threshold: 1.15 Mbps. Planned transition: The Services will use the ACTD results to update their future operational concepts and to refine National Security Space Office's Responsive

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Space Operations Architecture. Proven technologies, such as the Common Data Link, will be integrated to increase data transmission rates from space to the warfighter and autonomous state of health processes to reduce satellite operations and maintenance costs. The lead Combatant Commander (CoCom) is the U. S. Strategic Command. The lead service is the Air Force.

- FY 2007 Output - The TacSat-2 ACTD successfully launched in December 2006. Following on-orbit checkout, the sensor systems will undergo testing and calibration leading into its participation in the Talisman Saber 07 exercise in the PACOM AOR. TacSat-2 also plans participation in Valiant Shield, Empire Challenge, and Ulchi Focus Lens. After each exercise a quick-look report will be produced to understand the utility of the satellite, refine concepts of operation and understand lessons learned. Following the final exercise a formal Military Utility Assessment report will be produced ultimately affecting the future Operationally Responsive Space construct.

FY 2008 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Counter Intelligence - Human Intelligence Architecture Modernization Program, Intelligence Operations Now (CHAMPION)

6.400

The Joint Requirements Oversight Council (JROC) validated the capability need for CHAMPION as a FY06 new start Joint Capability Technology Demonstration. The outcome will provide improved capabilities for the counter-intelligence, human-intelligence and special forces communities of interest. These improvements will provide an accessible and actionable information system for management of the CI/HUMINT/SOF collection, mission planning and 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 are: 1) joint data standard for human domain; 2) CHAMPION information collection tool and associated concept of operations (CONOPS), tactics, techniques and procedures (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, CIHUMINT 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; 5) Joint CONOPS/ TTPs; 6) Biometric and geo-spatially enabled mission and asset management tools. The transition strategy is to incorporate CHAMPION capabilities into the Distributed Common Ground Station program of record (POR) and the CHARCS (CI HUMINT Automated Reporting Collection Systems). 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 2007 Output - Completed Spiral 1 limited assessment report and Spiral 2 assessment plan. Executed the Spiral 2 development. Secured funding for fielding of spiral deliverables and interim capabilities found to have military utility by operational sponsor.

FY 2008/2009 Planned Output - Refer to the JCTD R2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Comprehensive Maritime Awareness (CMA)

6.400

The Joint Requirements Oversight Council validated the capability need for CMA as an FY06 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 will be demonstrated and operated in CY-06, with advanced capability spirals in FY07 and FY08, and transition support in FY09. The lead Service is U.S. Navy. The primary outputs and

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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 2007 Output - Continue operating FY 2006 spiral capability. Integrate capabilities of the U.S. Coast Guard Vessel Tracking Program, and automated anomaly and threat assessment, at key regional sites determined by architecture decisions. Conduct interim military utility assessment. Complete planning for network services and architecture implementation for FY 2008 for interagency sharing.

FY 2008 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Event Management Framework (EMF)

3.000

The Joint Requirements Oversight Council validated the capability need for EMF as an FY06 new start. The goal of EMF is to demonstrate the ground breaking capability of vertical and horizontal sharing of heretofore stove-piped information among organizations within and outside of DOD by emphasizing EMF policies; operational concepts; and tactics, techniques and procedures. In handling a terrorist event or incident, a horizontal information focus among Federal agencies is necessary during the interdiction phase of an incident. During response and recovery phases, a vertical information sharing focus among Federal, state, and local agencies is needed.

A coherent interoperable information sharing mechanism is needed to: (1) Discover and share information resources throughout the incident based coalition domain; (2) Recognize the changing value of temporal information; and (3) Analyze and synchronize the large amounts of data relative to an event. All COCOMs, as well as their non-DoD partners, have made large investments in command and control (C2) and collaboration coordination tools. But, to date, effective integration of those investments has been sub-optimal. The event management framework consists of policies, operational concepts and technologies to ensure decision makers can build a situational picture of an event with all relevant facts. The primary outputs and efficiencies to be demonstrated in the ACTD Military Utility Assessment (MUA) are: 1) Integrated EMF policies; operational concepts; and tactics, techniques and procedures; 2) Improved and more timely incident and information correlation to "connect the dots"; 3) Faster visualization of analytic results to aid decision makers in event assessment; 3) Addition of EMF databases and engine servers to cache data; 4) Capability to share information and analytical results across COCOMs, Coalitions, Services, and its interagency partners; 5) Reduced time required for event based decision making. EMF is a three-year project under the sponsorship of the United States Northern Command. The lead agency is the Defense Information Systems Agency (DISA).

- FY 2007 Output - Developed Spiral 2 capabilities - incident and event reasoning prototype, ontology and data models. Developed portal interfaces. Add regional partners. Provide advanced cryptographic devices. Refine smart agents. Refine CONOPs and TTPs. Plan Joint Military Utility Assessment (JMUA). Conduct command post exercise 2.

- FY 2008/09 Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Extended Space Sensors Architecture (ESSA)

2.800

The Joint Requirements Oversight Council (JROC) validated the capability need for ESSA as a FY06 new start. The ESSA ACTD is creating a joint, distributed, net-centric space surveillance framework. The expected outcome of the ESSA ACTD is a flexible, responsive and scalable command and control family of systems which enhance United States Strategic Command's (USSTRATCOM) Space Situational Awareness (SSA) capability. ESSA is a three-year ACTD sponsored by USSTRATCOM and Commander Joint Forces Component Command Space (CDR JFCC SPACE). The ESSA Operational Utility Assessment (OUA) is planned for mid FY 2009, and the capability will transition to Programs of Record (PORs) by the end of FY 2009. The lead service is the U.S. Air Force. The ESSA ACTD will develop and demonstrate a net-centric sensor architecture which provides more timely SSA information via the Secret Internet Protocol Router

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Network (SIPRNET) to decision makers. ESSA efficiencies will include: increased timeliness for delivering data products from sensor to command and control (C2) node; ability of netted sensors to perform more efficient strategies for searching, tracking, identifying and monitoring space object population; ability of C2 node to observe sensor operations in real-time and make rapid decisions in response to space events; and the ability of an architecture to support both theater and strategic users. While this ACTD does not answer all of the SSA gaps and shortfalls identified in USSTRATCOM's Space Control Joint Capability Document (JCD), it does address the number one priority identified in the JCD of synergistically exploiting all available SSA data.

- FY 2007 Output - The focus in FY07 was on the first of three demonstrations and supporting programmatic milestones. The management team wrote, coordinated, and signed the ESSA Management Plan. The transition team began developing a comprehensive transition plan. The operations team completed the Demonstration Execution Document (DED) and data gathering checklists and methodology for Demonstration 1. On 13 Dec 06, members of the ESSA management team, including the Massachusetts Institute of Technology, Lincoln Laboratory (MIT/LL), successfully completed the ESSA ACTD Demonstration 1. The objective of Demonstration 1 was to expose operationally relevant information and data from a radar imaging sensor via net-centric means. By using web-based applications, end users at Joint Space Operations Center (JSpOC) at Vandenberg Air Force Base (AFB), CA and the Space Situational Awareness Test Bed (SSATB) at Schriever AFB, CO were able to subscribe, retrieve and monitor wideband imagery and other products from the Haystack Auxiliary (HAX) radar imagery sensor. This demonstration was conducted over the Defense Research and Engineering Network (DREN). On 20 Apr 07, the ESSA SIPRNET risk reduction effort successfully validated the migration of the ESSA capabilities from the DREN to the SIPRNET. HAX radar tasking, imagery and associated metadata were transferred via the SIPRNET to multiple users simultaneously within similar timeliness as observed during Demonstration 1.

- FY 2008/2009 Planned Output - The focus for FY08 will center on two major topics: demonstration and transition. The Operations Integrated Products Team (Ops IPT), along with the 46th Test Squadron will draft the assessment objectives and sub-objectives that will validate the Critical Operating Issues (COIs). This information will then be incorporated into a comprehensive DED and data gathering checklists and questionnaires. Demonstration 2, which will include deep-space satellite monitoring, change detection and satellite conjunction analysis, is scheduled for 1 - 5 May 2008. The ESSA ACTD will culminate in March/April 2009 with a final demonstration. This demonstration will center on the characterization of a New Foreign Launch (NFL). The Ops IPT will lead the objective/sub-objective development, as well as the DED and associated assessment methodology. The ESSA transition manager, with the help of the entire ESSA management team, will finalize the transition plan for migrating ESSA ACTD capabilities into the hands of the warfighter. The transition plan will include two critical portions: the extended use of residuals and transition. The extended use of residuals, a two year period beginning April 2009, will increase the number of space surveillance network (SSN) sensors connected in a net-centric service orientated architecture and define an operationally focused concept of operations and tactics, techniques, and procedures. The transition period will begin after the extended use of residuals period has ended. During the transition period, additional SSN sensors will be added to the net-centric C2 network; however, detailed oversight and procedural development support will become the responsibility of the warfighter.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Joint Enable Theater Access - Sea Ports of Debarkation (JETA-SPOD)

4.000

The Joint Requirements Oversight Council (JROC) validated the need for JETA-SPOD capabilities as a FY06 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, with completion of development and demonstration by end of FY2008; and transition to U.S. logistics systems as early as FY2009. The lead service is 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-

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compatible ports and doubling of the port throughput rate. LMCS Output includes incorporation of state-of-the-art connector and tensioning technology; innovative emplacement and recovery system applicable to multiple military/civilian platforms; innovative self-locking and strap tensioning technologies; high strength fabrics for robust, lightweight floatation technology that quickly inflates/deflates for rapid LMCS emplacement and 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 flexibility and a broader range of options 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 2007 Accomplishments - Conducted early user evaluation and incorporated changes prior to testing; developed Training Strategy and began limited user training; completed LMCS full-scale component demonstration and testing; began LMCS fabrication; planned residuals and technical support; received an approved/signed Management Plan; completed draft JSAT and LMCS CONOPS; refined DAMP; locked Decision Support Tool data requirements; developed Decision Support Tool Beta Version as Spiral Output to the field; conducted a Decision Support Tool Limited MUA; and continued Interim Transition Planning (ITP).

- FY 2008 Accomplishments - Refer to the JCTD R-2a

- FY 2009 Planned Output - Refer to the JCTD R-2a

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Joint Modular Intermodal Distribution System (JMIDS)

8.900

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: 1) incompatible air and ground cargo systems; and, 2) 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.

JMIDS is a three-year project under sponsorship of US Transportation Command, with JCTD completion by the end of FY 2008, and transition to selected Program Manager(s) / Program of Record(s) [Joint Modular Intermodal Platform (JMIP) and Joint Modular Intermodal Container (JMIC)] by FY 2009. The lead service is Army. 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, overall improvement of situational awareness upon use of AIT.

- FY 2007 Accomplishments - Completed acquisition of JMIC, JMIP and AIT demonstration hardware. Conducted three MUAs. Completed multiple Capability Development Documents (CDD)

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spirals and Integrated Logistics Support planning drafts. Commenced CDD staffing through the Services. Delivered hardware and conducted engineering tests for a Coalition Warfare Demonstration of the JMIDS hardware with the United Kingdom.

- FY 2008 Refer to JCTD BA4 R-2a

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Large Data

6.400

The Joint Requirements Oversight Council (JROC) validated the capability need for the Large Data (LD) Joint Capability Technology Demonstration (JCTD) as an FY06 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 2007 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. Provide large geospatial visualization displays and advanced data integration. Refine CONOPs and TTPs. Plan JMUA. Conduct demonstration in USFK and JEFX.

- FY 2008 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

MASINT Tactical Intelligence Fusion (MASTIF)

6.400

The Joint Requirements Oversight Council (JROC) validated the capability need for MASCOT, renamed MASTIF, as an FY06 new start. The outcome of MASTIF is to provide the warfighter with a set of Network Centric Intelligence, Surveillance and Reconnaissance (ISR) collection systems and management applications to employ traditional and non-traditional, distributed sensing against concealed/obscured targets, with the goal of enhancing detection, classification, characterization, and tracking of these targets. This five-year project is under the sponsorship of the United States Special Operations Command (USSOCOM) and United States Southern Command (USSOUTHCOM). The lead DOD agency is the Defense Intelligence Agency (DIA). The primary outputs and efficiencies to be demonstrated are: 1) exploit Measurement and Signatures Intelligence (MASINT) technologies and develop new sources and methods to counter adversary concealment and deception techniques, 2) develop new methodologies for sensor-to-sensor communications to enable tipping and cueing, and 3) seek new fusion processing systems to make maximum use of the data to solve the difficult problem of concealed/obscured targets.

FY 2007 Output - MASTIF Management Plan Signed. Established required support for Technical and other IPTs. Awarded contract to start development of fusion engine and system integration. Finalized system design. Initiated development of MOPs and MOEs as part of initial MUA planning. Established and establishing coordinating MOAs for participation by other organizations,

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including sensor loaning agreements. Began transition planning.  
 - FY 2008 Output/ Planned Output \_ Securing necessary airborne test platform and sensor systems. Tailoring system and system flexibility with input from mission partners and operators. System integration; lab and ground testing and demonstrations; and initial flights for system training, system refinement, and developmental testing. Continuing detailed planning for Operational Testing and Military Utility Assessment (MUA). Conducting initial operator training for the MUA. Developing detailed CONOP. Continuing to partner with other organizations to enhance capability and interoperability with other systems, user groups, and data exploitation centers, in order to involve users early and maximize opportunities for transition. Continue transition planning and development.  
 - 2009 Planned Output - Conduct Final Demonstration and Military Utility Assessment. Begin Residual Transition. Spiral initial ACTD capability for COCOM field application. Support required documentation modification needs, and supply required documentation as appropriate for transition. Continue development of CONOPs and TTPs, based on user feedback. Support technology transition.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Node Management and Deployable Depot (NoMaDD)

2.600

The Joint Requirements Oversight Council (JROC) validated the capability need for NoMaDD as a FY06 new start which is demonstrating technologies to address critical delays in getting needed supplies to the warfighter. Loss of visibility of items in the distribution pipeline and the inability to provide realistic delivery dates or effectively adjust the flow of commodities for delivery at the right place at the right time continue to impact the effectiveness of our forces. Node Management will provide distribution node managers the visibility needed to make logistics decisions to positively affect the distribution system. Deployable Depot will provide the ability to quickly establish a supply and distribution center in theater to control the physical flow of materiel moving into and through the theater. Together, these capabilities will provide the logistic responsiveness necessary to support our warfighters in any theater of operation. NoMaDD's effectiveness will be measured through its contribution to sustained logistics for major military deployments. Specific outputs and efficiencies will include: 1) increased accuracy in accounting for supplies resulting in reductions in customer wait time; 2) improvements in required airlift to support sustainment; 3) reductions in repeat requisitions. The planned transition for NoMaDD: Node Management will transition to the Army's Battle Command Sustainment Support System and U.S. Transportation Command's (TRANSCOM) Intelligent Road/Rail Information System (IRRIS) Program which will provide a web based version on Node Management. The Deployable Depot will become a program of record and be managed by DLA. The Combatant Command/User Sponsor is TRANSCOM and the lead service/agency is Defense Logistics Agency (DLA).

- FY 2007 Output - Continued spiral development and demonstration of Node Management capabilities, including node capacity and improved data integrity. Completed procurement and integration of equipment for the Deployable Depot. Preliminary transition plans for both Node Management and Deployable Depot were developed. A successful Limited Utility Assessment of the Theater Consolidation and Shipping Point component of Deployable Depot was held in April 2007. The IRRIS Program joined the NoMaDD ACTD team to provide a web-based version of node management. Development of IRRIS capabilities and integration with BCS3 was initiated.

- FY 2008/2009 Planned Output - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Small UAV (SUAV)

3.200

The JROC approved the capability need for SUAS as an FY06 new start. The outcome of SUAS is to address Joint operational concerns noted during on-going operations through the integration of new technology across the entire class of Small UAVs. The outputs and efficiencies to be demonstrated are: technology insertions to provided measurably improved performance/logistical support in

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the following areas: Command, Control and Communications (C3); Payload Integration; Targeting; Platform Related Issues (power, propulsion, etc.); improved operator training through the use of integrated training programs with emphasis on simulation; improved and more efficient Tactics, Techniques, and Procedures (TTP) across the Services for small unit real-time reconnaissance and surveillance capabilities. New operational capabilities will be evaluated and no less than once per year. Transition strategy: FY2009/2010 is the transition period. The capabilities will be integrated into USSOCOM systems, and available for integration into all SUAS customers assets (spiraled out of the ACTD into the field as they become available). The User Sponsor and Lead agency is U.S. Special Operations Command (USSOCOM).

- FY 2007 Outcome - Continue technology definition and cut in (spiral fielding). Begin TTP development. Continue CONOP refinement. Perform two limited assessments and one Interim Military Utility Assessment to support fielding of capabilities.

FY 2008/2009 Planned Outcome - Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Tactical Service Provider (TSP)

2.400

The Joint Requirements Oversight Council (JROC) validated the capability need for TSP as a FY07 new start. The TSP ACTD focuses on taking full advantage of emerging commercial technologies to significantly enhance and improve C2 and Net-Centric capabilities to meet critical present and near-term requirements until DoDs next generation communication systems (JTRS, TSAT, GBS, IP SATCOM) are at Full Operational Capability (FOC). TSP is planned for a final demonstration in the fourth quarter of FY08, with sustainment of the demonstrated capabilities by DISA through FY09 until transition to programs of record in FY10. TSP outcome will enable broadband communications between strategic information sources and tactical users as well as between tactical users. The expected output is wideband communications supporting two-way, high-bandwidth services for tactical users using a hybrid architecture of emerging, standards-based SATCOM and wireless technologies by delivering robust lightweight commercially available applications, DoD tactical applications, and emerging Net Centric Enterprise Services (NCES) applications through demonstration and testing in a simulated, mobile tactical environment. The expected efficiency is substantial increase in delivery of tactically relevant command and control and intelligence-related information products to land mobile troops, and the near real time delivery of tactically generated information to operational and strategic echelons. TSP is a two year ACTD co-sponsored by USCENTCOM and USJFCOM. The Defense Information Systems Agency (DISA) is the lead agency.

- FY 2007 Output: The technical focus for TSP in FY07 will be on implementing emerging digital broadcast protocol standards for forward SATCOM link, using emerging Joint Internet Protocol (IP) Modem standard and a new satellite protocol standard for return SATCOM link, achieving two-way Bandwidth on Demand, and the addition of a Global Broadcast Service (GBS) terminal appliqué using IEEE standard 802.16 for two-way wireless communications extension. TSP expected efficiencies include a 38% improved bandwidth efficiency over existing digital broadcast standard in use today, decreased size and weight of equipment required by mobile tactical sources to send and receive relevant information, and measurable real- or near-real-time transmission of intelligence collection products from deployed forces back to operational and strategic users. Two demonstrations are planned for the fourth quarter of FY07: the first two-way IP SATCOM communications over the improved GBS terminal prototype; the second a WiMax (802.16) wireless extension of communications connectivity from the improved GBS terminal. From an operational viewpoint, these demonstrations will establish the new baseline for bi-directional high bandwidth satellite communications, and provide early limited military utility assessment of the technologies. Programmatically, the operational and technical teams will be obtaining approval of the Implementation Directive and developing the Concept of Operations (CONOPS) and the integrated assessment plan.

FY 2008/09 Planned Output: Refer to the JCTD R-2a.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Joint Multi-Mission Electro-Optic Sys (JMMES)

2.000

# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

**APPROPRIATION/ BUDGET ACTIVITY**  
**RDTE, Defense Wide BA 03**

**PE NUMBER AND TITLE**  
**0603750D8Z - Advanced Concept Technology Demonstration**  
**(ACTD)**

**PROJECT**  
**P523**

The Joint Requirements Oversight Council validated the capability need for JMMES as an FY-07 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. 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 will be demonstrated and operated in FY07, with demonstrations against additional targets with additional aircraft types in FY08 and FY09. Transition activities began in FY07, leading to firm transition to programs of record in Program Objective Memorandum 2010. The lead Service is U.S. Navy.

- FY 2007 Output - Upgraded existing sensor suites to second generation for JMMES applications, integrated sensor and processing systems aboard selected aircraft. Conducted data collection and assessments for anti-submarine warfare missions, and begin algorithm development for other targets. Began Concept of Operations and system architecture documentation. Submitted POM documentation for transition to two Navy Programs of Record (POM 10).

- FY 2008 Planned Output - Integrate third generation sensor suites. Flight test second generation systems, collect data for algorithm development and test. Execute JMMES integration into additional aircraft types for mine detection missions, search and rescue missions, counter concealment and deception (land targets) missions, illicit crop detection, and other missions. Complete initial algorithm development for the additional missions and conduct data collection and assessment trials, including interagency and coalition partner participation. Follow-up POM-10 submissions as needed.

- FY 2009 Planned Output - Complete multi-aircraft/multi-mission assessment trials and draft Military Utility Assessment. Complete Concept of Operations, Tactics/Techniques/Procedures, and System Architecture documentation. Support ongoing transition activities into programs of record. Complete the JCTD.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

Maritime Auto Super Track Enhance Reporting (MASTER)

2.500

The Joint Requirements Oversight Council (JROC) validated the capability need for MASTER (Maritime Automated Super Track Enhanced) as an FY07 new start. The initial goal of MASTER is to demonstrate a set of technologies with associated CONOPS, which provide automatic tracking of ship traffic using both unclassified and classified methods and which will provide a tangible improvement of United States maritime domain awareness on a global-basis. The MASTER JCTD will also provide a common set of Tactics, Techniques and Procedures (TTPs) to the Intelligence Community (IC) that will allow adoption of this new capability across the IC. The primary outputs and efficiencies to be demonstrated in the Military Utility Assessment (MUA) are to develop and deploy a persistent maritime awareness capability for the analyst, warfighter and decision maker that enables: (1) significant increase in worldwide, multi-INT vessel tracks using information sources from SCI/Secret/Unclassified-levels and dissemination of these "Super Tracks", to operational users at the JWICS and Secret security levels; (2) percent decrease in the time required for an intelligence analyst to assemble the maritime awareness picture of ships using track, cargo and people information; (3) percent increase in the ability of an analyst to determine ship threat profile (friend or foe) based on ship track, cargo and people information at the JWICS level; (4) percent increase in number of maritime awareness entities (ship, people, cargo, infrastructure) and the ability to manually and automatically fuse the data. The JCTD Residuals include: 1) Multi-INT fusion for worldwide MDA tracks with associated metadata; 2) web portal at the JWICS level; 3) SOA at JWICS level; 4) Alarms/alerts notification methodology; 5) Operationally tested CONOP for a 24/7 worldwide capability. MASTER is a three-year JCTD under the sponsorship of US Northern Command (NORTHCOM) and US Navy, with completion of development and demonstration by the end of FY 2009 and transition to the IC through ONI beginning in FY 2009. The lead service is Navy.

- FY 2007 Output - Worldwide tracking, user access via a JWICS web portal and an initial set of user definable alarms focused on ship tracking.

- FY 2008/2009 Planned Output - Refer to the JCTD R2a.

<b>OSD RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>		<b>February 2008</b>		
<b>APPROPRIATION/ BUDGET ACTIVITY</b>	<b>PE NUMBER AND TITLE</b>	<b>PROJECT</b>		
<b>RDTE, Defense Wide BA 03</b>	<b>0603750D8Z - Advanced Concept Technology Demonstration (ACTD)</b>	<b>P523</b>		
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Coalition Mobility System (CMS)		2.500		
<p>The Joint Requirements Oversight Council validated the capability need for CMS as an FY07 new start. The outcome of CMS is to develop the capability for rapid coordination of coalition movement execution. CMS will integrate selected, operationally relevant data from US systems with data sources used by coalition partners to establish a working coalition environment, which meets the needs of US and CTF decision makers. The primary outputs and efficiencies to be demonstrated in the JCTD are: 1) US operators gain access to coalition movement data (military and commercial) using familiar US national systems (Single Mobility System, Global Transportation Network, etc.), 2) Supports the Common Operating Picture for Deployment &amp; Distribution (COP D2), 3) Coalition partners and CTF staff gain access to selected, operationally relevant information on US and coalition airlift and sealift (military &amp; commercial) supporting coalition activities. CMS is a 4-year project sponsored by US Pacific Command. Key participants include the Quadilateral Logistics Forum consisting of Australia, Canada, United Kingdom, and the United States. Initial capabilities will be demonstrated and operated in FY07, demonstrations and assessment on coalition networks in FY08 and FY09. USTRANSCOM is the Transition Manager and transition activities will begin in FY07, leading to firm transition to multiple coalition networks by 2010.</p> <p>- FY 2007 Accomplishments - Identified the US data elements to be made available in CMS; identified queries for use by CMS users; Addressed the issue of releasing selected SMS data elements in CMS; defined report formats for CMS users and identified existing SMS functionalities to be made available in the CMS tool. Delivered network integration; designed and implemented an electronic data interface (EDI) which allows for the acceptance of properly formatted coalition partner information into the CMS database</p> <p>- FY 2008 Accomplishments - Refer to the JCTD R-2a</p> <p>- FY 2009 Planned Output - Refer to the JCTD R-2a</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Joint Surface Warfare (JSuW)		1.500		
<p>The Joint Requirements Oversight Council validated the capability need for JSuW as an FY07 new start. The United States Pacific Command submitted and validated the need for a Joint Surface Warfare capability utilizing the net enabled weapon message set. The intent of the JSuW JCTD is to demonstrate that capability and show the military utility of having multiple, Joint Intelligence, Surveillance and Reconnaissance (ISR) aircraft control a variety of anti-ship weapons against surface combatants at stand-off ranges in all weather conditions. The prime objectives of the JSuW JCTD are to demonstrate the capability and deliver the associated concept of operations (CONOPS) with associated training, tactics and procedures (TTPs) requisite to executing this capability.</p> <p>ISR Platforms: E-8 Joint Surveillance Targeting Attack Radar System (JSTARS) and the P-3 Littoral Surveillance Radar System (LSRS)  Launch platform: F/A-18 Hornet  Weapons: AGM-154C Joint Stand-off Weapon (JSOW-C-1), AGM-84D Harpoon Block III, and the AGM-84K Stand-off Land Attack Missile-Expanded Response (SLAM-ER)</p> <p>FY07 Output: Approved Implementation Directive and Management Plan formed, Integrated Product Team established, spend plan developed, initial Link 16 net enabled weapon network modeling and analysis, first simulation exercise for development of draft concept of operations executed, draft of test plan produced.  FY08 Planned Output: Funded in JCTD PE 0603648D8Z. Laboratory tests for development and integration, secondary level of modeling and simulation analysis, produce first draft of information exchange requirements between participating systems, continued refinement of test plan, second simulation exercise based upon further-developed concept of operations, training table tops for process flow and training, tactics and techniques development, limited single platform and single weapon ground tests.  FY09 Planned Output: Funded in the JCTD PE 0603648D8Z. Completed ground tests for individual and multiple platforms and weapons, test plan finalized, limited initial flight test, all associated</p>				

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requisite systems and processes defined and finalized including network, cryptology and mission planning, initial architectures developed per CJCSI 6212.01D.				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Internet Protocol Router in Space (IRIS)		1.000		
<p>The Joint Requirements Oversight Council (JROC) validated the need for capability from IRIS as a FY07 new start. IRIS leverages a planned launch of a commercial communications satellite to introduce Internet Protocol (IP) routing and cross-banding between C-band and Ku-band transponders. The IRIS outputs and efficiencies include (1) demonstrate the capability to collaborate with industry in leveraging the commercial acquisition processes to provide near-term, space-based, IP routing network capability, (2) demonstrate the capability via a commercial payload to conduct on-board IP packet routing communications from a geostationary orbit, (3) explore and incorporate a decision process to determine which commercial SATCOM users should leverage the IRIS capability. USSTRATCOM is assigned responsibility for global network operations, and as the operational user sponsor seeks to improve network reliability and endurance through dynamic topology updates (multiple transport paths) and improved collaboration and interoperability among info sources and users (e.g., sensors, soldiers, command centers at Joint, Allied and Coalition levels). The Defense Information System Agency (DISA) is the lead Service and will transition the demonstrated commercial capability into contracting language for future services subscription in support of operations, including integration of IRIS services into existing network architectures beyond the IRIS JCTD.</p> <p>" FY 2007 Planned Output - Develop the draft CONOP and conduct a scenario-based limited military utility assessment that will simulate the use of the IRIS capability.</p> <p>" FY 2008 Planned Output - Validate and verify draft CONOP and demonstration architectures to enable a limited military utility assessment of an emulated IRIS capability. Participate in the industry led end-to-end IRIS technical capabilities demonstration with representative hardware prior to IS 14 launch.</p> <p>" FY 2009 Planned Output - Launch of the IS 14 spacecraft is projected for the 1st quarter FY2009. Conduct a live scenario and capability based demonstrations culminating in a final military utility assessment of the IRIS JCTD. The IRIS JCTD will leave behind the IRIS capability on a fee for service basis to provide a space based routing enterprise solution that enables video, voice and data network services. Complete the JCTD.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Global Observer (GO)		2.100		
<p>The Joint Requirements Oversight Council validated the capability need for Global Observer (GO) as an FY-07 new start. The outcome of the Global Observer project seeks to develop an unconventionally fueled (liquid hydrogen) long range, long duration (7 days), high altitude (50k ft+) unmanned aircraft system, to meet COCOMs' need for persistence on station with a reduced, perhaps negligible, logistical footprint in theater. The JCTD will use existing proven systems to field a UAS as a stratospheric satellite to provide affordable, persistent presence over an area of interest for surveillance and communications relay missions. The outputs and efficiencies created by GLOBAL OBSERVER would be in the increased capability to carry ISR and communications relay payloads, among others (payloads are government provided). Output demonstrated would be greater than 7 days endurance at altitudes of 65,000 feet or greater with high mission utilization rates. Greater persistent ISR. Increased communications/data relay bandwidth availability; Enables critical forensic and communications relay missions; Affordable persistence: less flights, fuel, &amp; ops cost; New fuel option permits much greater persistence. Anticipate completing JCTD and enter transition in 2 years. The U. S. Lead Service will be the US Army or USAF (P) and the Sponsoring CoCOM will be USSOCOM (P) and/or USSTRATCOM (P).</p> <p>- FY 2007 Output - Began the manufacture of prototype aircraft and production representative vehicles. Begin payload integration. Began manufacture of ground systems.</p> <p>- FY 2008 Planned Output - Take delivery of air vehicles and ground stations. Begin flight test program. Initiate planning for operational demonstrations. Planned JCTD completion is FY2009</p>				

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2008		
APPROPRIATION/ BUDGET ACTIVITY <b>RDTE, Defense Wide BA 03</b>		PE NUMBER AND TITLE <b>0603750D8Z - Advanced Concept Technology Demonstration (ACTD)</b>		PROJECT <b>P523</b>
(includes 1 year Transition Period).				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Regional Maritime Awareness Capability (RMAC)		0.500		
<p>The JROC validated the capability need for RMAC as an FY06 new start. RMAC is a coordinated DoD and Department of State project. 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. 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), radar, 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, radar, 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 / TTPs; 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 (EUCOM) and the lead service is the Navy.</p> <p>- FY 2007 Output - Conducted additional site surveys in participation host nations, and developed coordinated installation plans with one host nation. Conducted series of high level discussions with officials of a second strategic host nation, leading to enthusiastic agreement to participate from that country. Finalized procurement of RMAC components. Initiated development of training package. Continued development of CONOPS, Tactics, Techniques, and Procedures (TTP) and architecture. Conducted technical testing and demonstrations. Installed baseline operational capability (BOC) equipment and software systems, and conduct initial checkout tests and operations with host nation personnel</p> <p>- FY 2008 Planned Output - Finalize requirements definition and architecture. Complete installation of RMAC capability in both participating nations. Continue development of CONOPS, TTP, and training package. Conduct operational demonstrations and Coalition Utility Assessment (CUA) of RMAC capability including local harbors / ports, National Operational Centers (NOC), and external users.</p> <p>- FY 2009 Planned Output - Sustain operational capabilities in host nations, complete transition planning and complete the JCTD.</p>				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Joint Enabling Technolgies		7.105		
<p>Over the past several years congressional committees have highlighted the potential of mature, joint technologies and provided resources to the JCTD program to investigate the military utility of these technologies. DUSD (AS&amp;C) also becomes aware of promising technologies which may have transformational application to JCTDs. The need for these technologies may be realized until an JCTD is mid-way through its development or after a final demonstration. In most cases, these enabling technologies have broader application across several functional capabilities addressed by various ACTDs. Two enabling technologies were funded in FY 2007.</p> <p>1. Iridium Global Positioning System (iGPS) - Development for accelerating anti-jamming enhancement capabilities of Global Position, Navigation, and Time (PNT). The Objective and Payoff: Development and demonstration of using low earth orbit space systems to improve the vulnerability and precision of the existing GPS navigation capability. The effort leverages existing space resources that will provide an interim capability until the future robust GPS architecture becomes operational. The concept that leverages the existing Low Earth Orbit satellite constellation Iridium to provide a global enhancement to the current GPS navigation capability. A team of experts has been assembled to determine key components of the technology required to demonstrate the concept. The elements under this effort include: 1) quantifying anti-jam performance in moving vehicle tests using brassboard hardware, 2) measuring precision location capabilities in jamming environment,</p>				

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**P523**

3) demonstrating long base-line time transfer, 4) demonstrating ephemeris store & broadcast, and 5) demonstrating sub-decimeter position accuracy.

2. The ARGUS Study Team - Objective: Provide national-level systems architecture and systems analysis personnel to participate in the Argus Study Team. Provides DDR&E with engineering and technical analysis support to effectively guide and direct the SNL Argus Study task and develop a low-risk plan for an early end-to-end Overhead Non-imaging Infrared (ONIR) flight demonstration with growth to an operational ONIR constellation. This task delivers a Demonstration Requirements Document which shall be the basis for assessing the SNL design and development plans. This task also provides an independent risk assessment & mitigation plan for the Argus demonstration and an independent Transition Plan for the government.

**Accomplishments/Planned Program Title:**

FY 2007

FY 2008

FY 2009

CoCom Direct Support, Pre-Transition, and Classified programs

10.208

Direct support costs for the ACTD program averages between \$11-\$20 million annually. ACTD Direct Program Support is comprised of four programs broken-out separately from the specific ACTDs projects. The direct funding line is used to provide support for the entire ACTD program (versus individual ACTDs). These four programs include (1) Unified Combatant Commander; (2) ACTD Pre-Transition Support; (3) Interagency Classified Projects, and (4) Joint enabling technologies that are either directed by congress or initiated by DUSD (AS&C).

1) Unified Combatant Commander (UCC) Direct Support: The UCC's play an essential role in the selection, validation, demonstration, and transition of ACTDs. Many ACTDs have funding allocated for the UCCs from within their specific program funding lines. Additionally, in previous years DUSD (AS&C) would attempt to provide direct ACTD support from OSD if resources became available. This direct support allows for a timely allocation of resources to the UCCs, based on the number of ACTD projects being sponsored and the intensity of effort required. The Department also envisions that the UCCs will play a greater role in the development, support and coordination of JCTD/ACTDs that are coalition oriented (within their specific AOR). UCC direct program funding is estimated at \$5.0 million per year.

2) ACTD Pre-Transition Support: The ACTD program has been highly successful in rapidly developing and demonstrating new technologies and complementary concepts of operations for the warfighter. In order to successfully transition more ACTDs to the warfighter, the SECDEF established the goal of increasing the number of ACTDs evolving into formal acquisition programs. In order to enhance this transition effort and to respond to GAO recommendations in earlier years, the ACTD program continues to support a pre-transition line in the ACTD budget submission. Funding for pre-transition initiatives will be in the approximately \$3.0 million per year.

3) Special Capabilities Office (SCO)/Interagency Classified Support for ACTDs: ACTDs also support a limited number of classified efforts which are coordinated with other agencies and detailed in separate DoD budget exhibits. Funding for this direct program support is estimated \$11.0 million each year.

4) Joint Enabling Technologies: Over the past several years congressional committees have highlighted the potential of mature, joint technologies and provided resources to the ACTD program to investigate the military utility of these technologies. DUSD (AS&C) also becomes aware of promising technologies which may have transformational application to ACTDs. The need for these technologies may be realized until an ACTD is mid-way through its development or after a final demonstration. In most cases, these enabling technologies have broader application across several functional capabilities addressed by various ACTDs. Five enabling technologies were funded in FY 2005. Funding for the Enableling technologies is listed above and not included here.

**C. Other Program Funding Summary**

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

Joint Capability Technology Demonstration (JCTD): PE 0603648D8Z, BA3

35.594

202.484

206.337

201.975

195.537

198.276

201.211

JCTD Transition: PE 0604648D8Z, BA4

3.029

2.934

14.962

18.911

18.886

19.917

19.959

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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, only the ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. 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** The strategy for ACTDs has always been to focus on developing a transition path into a program of record or to establish a new program for those projects that show significant military utility in the demonstration phase. Under the new JCTD program, only the ACTD/JCTDs that demonstrate the highest military utility will be considered for the transition funding in the JCTD BA4 Transition PE. Many JCTDs will transition smoothly into a well identified program of record and not require funding from the transition PE (the transition arm of the JCTD model). Promising ongoing ACTDs may also receive transition funding from the JCTD Transition arm as the ACTD program completes. All ACTD funding will transfer to the JCTD program element in FY08. Beginning in FY07 all new starts will be JCTD only. Some initiatives that are successful but are having smaller problems transitioning to an identified program of record may receive "pre-transition" funding from the JCTD BA3 PE.

- Capability Based: Greater CoCom influence looking at nearer term joint/coalition needs
- Provide Spiral Technologies - 25% will provide an operationally relevant product demonstration within 24 months of ID signature.
- Agile Demonstration - 75% complete final demonstration within three years of ID signature.
- OSD provide significantly more funding (often greater than 30%). In some exceptional cases a majority of project funding, especially during the first two years.
- JCTDs not necessarily tied to an exercise. Greater flexibility to establish military utility via operational "real-world" demonstration or specifically designed test/venue.
- 80% of JCTDs transition at least 50% of their products to sustainment.

**E. Major Performers** Not applicable for this item.