

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

May 2009

APPROPRIATION/ BUDGET ACTIVITY <b>RDTE, Defense Wide BA 06</b>	PE NUMBER AND TITLE: <b>0603757D8Z TRAINING TRANSFORMATION (T2)</b>							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
Total PE	55.682	58.009						
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758	36.718	45.093						
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759	10.666	3.570						
JOINT SIMULATION SYSTEMS (JSS) Project Code P761	10.366	9.346						
	0	0						
IRREGULAR WARFARE (IW) Project Code P764	0	0						
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769								
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760	0	0						

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

**\*\*The PE will change to 0804767D8Z in FY10 and out. \*\***

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)

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JNTC: Initially established in 2003, JNTC continues to develop and integrate Advanced Training Technologies (ATT) into a seamless Joint training environment. JNTC establishes the overarching Joint framework and context necessary for COCOMs and Services to achieve a Joint training environment through an integrated network of training sites and nodes. JNTC provides the common standards, architecture, and development processes required to link Joint training programs. By leveraging existing training programs or initiating specific actions, JNTC is providing credible opposing force capabilities and expanded access to assets typically unavailable to the training audience by integrating virtual or constructive representations of these capabilities. This furthers the integration of Joint training objectives into Service training events, while capturing the objective data necessary to provide a complete and accurate after action review. This program develops and enhances current and future Joint training enterprise capabilities.

TCAoA: The TCAoA effort focuses on comparing current training capabilities with training requirements in order to identify gaps in our current Joint training capability, to identify alternatives for resolution and to assess the cost and effectiveness of these alternatives. Specifically, the TCAoA focuses on: (1) developing and integrating enhancements to the existing and programmed constructive simulations, (2) pursuing selected alternative training methodologies, (3) developing an innovative acquisition prototype, (4) developing solutions to implement recommendations from the Joint Staff's comprehensive study to re-engineer Joint training and (5) developing a clear management and oversight structure to meet future Joint training requirements. These efforts provide solutions to the 35 gaps and seams in Joint and Service training requirements identified by the COCOM's in the SECDEF 2004 TCAoA study. These efforts increase warfighter Joint training capabilities with improved constructive simulations and streamlined acquisition processes, leveraging industry training methodologies and technologies to provide on-demand Joint training tailorable to COCOM requirements for Joint Task Force headquarters staffs and individuals.

JSS: This effort provides warfighters with enhanced Joint Live, Virtual, and Constructive (JLVC) based training capabilities resident in the Joint Force Trainer Toolkit (JFTT). The JFTT is a set of training enablers, and "certified systems" that are interoperable and acceptable for usage within the Joint training environment. The JFTT is a one-stop shop that enables Services, COCOMS, Agencies and Coalition partners to deliver trained, capable, and interoperable joint forces.

Irregular Warfare (IW): 85% of the casualties in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are from direct fire and improvised explosive devices in an IW environment. This research and development effort is aimed at closing training gaps at the tactical and operational level that will ensure our ground forces receive immersive pre-deployment training on par with that provided to our air, maritime, and Special Forces. The effort will research, develop and integrate technologies to enhance training for General Purpose Forces (GPF) to conduct IW operations through enhanced interagency teams, human terrain/cueing/profiling training, cultural awareness training, mixed reality training, and distributed training.

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JKDDC Advanced Technologies: JKDDC's requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployed to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs cultural awareness training. JTF 'battle staffs' will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical 'go to war' tasks.

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<b>RDTE, Defense Wide BA 06</b>	<b>0603757D8Z TRAINING TRANSFORMATION (T2)</b>							
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
	57.750	58.009						
JOINT NATIONAL TRAINING CAPABILITY (JNTC) Project Code P758	36.718	45.091						
JOINT TRAINING CAPABILITY ANALYSIS OF ALTERNATIVES (TCAoA) Project Code P759	10.666	3.570						
JOINT SIMULATION SYSTEMS (JSS) Project Code P761	10.366	9.346						
JOINT KNOWLEDGE DEVELOPMENT & DISTRIBUTION CAPABILITY (JKDDC) Project Code P769	0	0						
IRREGULAR WARFARE (IW) Project Code P764	0	0						
JOINT COMBINED TRAINING CENTRE (JCTC) Project Code P760	0	0						

**A. Mission Description and Budget Item Justification:**

**\*\*The PE will change to 0804767D8Z in FY10 and out.\*\***

These programs are part of a coordinated effort to develop and deploy capabilities for rapidly linking and integrating Live, Virtual, and Constructive (LVC) forces for Services, Combatant Commanders (COCOMs), coalition, and other government agencies. These programs will create a realistic battlespace environment in which to train as a Joint Warfighting force to meet emerging mission requirements including the Long War. These investments support the Secretary of Defense's (SECDEF) Training Transformation (T2) initiative to enable and enhance Joint Warfighting readiness by training as we intend to fight. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Training Capability Analysis of Alternatives (TCAoA)
- Joint Simulation Systems (JSS)
- Irregular Warfare (IW)
- Joint Knowledge Development & Distribution Capability (JKDDC)
- Joint Combined Training Center (JCTC)

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<u><b>B. Program Change Summary</b></u>	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget (FY 2008/2009)	57.750	38.728		
Current BES/President's Budget (FY 2010)	60.524	58.009		
Total Adjustments	-2.774	19.281		
Congressional Program Reductions	-1.231	-.319		
Congressional Rescissions	-1.543			
Congressional Increases		19.600		
Reprogrammings				
SBIR/STTR Transfer				
Other				

**C. Other Program Funding Summary:**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>
O&M PE 0901298D8Z	69.830	66.436						
Procurement, PE 0901298D8Z	15.990	16.192						

**D. Acquisition Strategy: Not Applicable**

**E. Performance Metrics:** The USJFCOM Joint Warfighting Center (JWFC) Joint Force Trainer Enterprise Resource Planning Board (JFT ERPB) established in FY07 reviews all RDT&E equities. The JFT ERPB consists of senior technical, operational, program manager, and stake holder representatives within the Joint Force Trainer Community. The board's responsibilities encompass merging and prioritizing technical training requirements. It apportions work to the RDT&E elements based on an assessment of where the work is best accomplished. The board will evaluate the efficacy of development efforts based on performance metrics and will vote on whether or not to continue the effort. This process will ensure the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, money, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
- Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

The ERPB is the strategic management forum where the outcomes of performance relative to our external customers, stakeholders, and strategic stewardship of resources are the focus of discussion. Performance against the targets will be assessed and reported monthly, briefed quarterly to the ERPB, and rolled up into the JWFC Joint Training End-of-Fiscal Year Performance Report to ensure transparency and accountability.

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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	
P758 Joint National Training Center (JNTC)	36.718	45.091							

**A. Mission Description and Budget Item Justification:** DoD directed USJFCOM to establish the JNTC Advanced Training Technology (JNTC/ATT) to develop future training concepts and capabilities. The mission is to develop robust RDT&E capabilities that integrate Live, Virtual, and Constructive (LVC) elements into a seamless Joint training environment. JNTC creates Joint warfighting conditions through a networked collection of interoperable training sites, ranges, and nodes that synthesize personnel, doctrine, and technology to deliver and achieve “Joint Context” for COCOM and Service training requirements. JNTC provides research and development (R&D) within an LVC distributed test-bed supporting the advancement of training technologies in the context of a Joint integrated battle space. The test bed operates as a continuous training R&D environment, providing the foundation for a distributed and deployable Mission Rehearsal System, integrating live Intelligence, Surveillance and Reconnaissance feeding the Common Operational Picture. These funds provide critical Joint/Coalition Service members and interagency partner’s enhanced training to allow requisite enhancements to existing training systems, capabilities, and technologies. These enhancements improve training efficiencies and provide an integrated LVC environment. This capability precludes the necessity for conducting large-scale live exercises to achieve the SECDEF’s T2 vision.

**B. Accomplishments/Planned Program:**

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P758 Joint National Training Center (JNTC)	27.732	22.863		

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## **FY 2008 Accomplishments:**

- Created 34 Modified Universal Joint Task architectures based on lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom focusing on intelligence task requirements. Maintained existing Joint Task Articles/Modified Universal Joint Task architectures as changes occur.
- Implemented 137 Certified Mitigation Solutions in Service-nominated Joint-Live Virtual Construction systems in accordance with Operation Management Process Action Team approved plan.
- Completed deployable spiral 1 on an enterprise solution to enable near-real time and post event assessment of the Joint Warfighters performance and developed a joint roadmap for the implementation of the multiple independent level of security solution for instrumentation.
- Developed and integrated Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment that enabled forces to train for Combating Weapons of Mass Destruction missions.
- Conducted research and development of new and emerging technologies such as immersive virtual technologies, story driven training, light simulation/federations, massive-multiplayer online games, training objective driven simulations, embedded training, and joint community unique simulations.
- Development of Opposing Forces (OPFOR) Capabilities: Continued development of Multi-Spectral Threat Emitter systems and transitioned initial variants into production, testing and training events. Concluded Man Portable Air Defense Systems development and testing and transitioned to initial low rate production. Initiated development and integration of an OPFOR Command & Control (C2) network to meet Navy Air Wing training requirements on the Fallon Range complex. Developed Battlefield Communications Simulation system upgrades that addressed emerging Navy and Air Force requirements. Transitioned procured systems into training events. Concluded Virtual Joint Suppression of Enemy Air Defenses development and transitioned the capability onto the Information Operations (IO) Range network and participation in appropriate exercises. Continued to provide operability enhancements, expanded traffic simulation and detailed behavioral models for the Information Operations Traffic Generator. Continued to develop concealment, countermeasures and decoy (CCD) equipment capabilities and technologies. Transitioned these CCD technologies to procurement and training events.
- Information/Knowledge Management Capabilities: Integrated Collaborative Information Environment (CIE) based products to provide a global collaborative planning capability for Joint training. Developed a web-accessible Enterprise Repository with the capability to track Joint requirements from validation through solutions development.
- Researched and defined a low cost, unclassified version of the Joint Training and Experimentation Network (JTEN) that leverages existing infrastructure that will more fully integrate the National Guard and Interagency into the Joint Training Enterprise.
- Conducted successful Proof of Concept to use an external Computer Network Defense service provider to enhance security during high risk events. This proof of concept will be implemented in FY09.
- Continued Next Generation JTEN detailed engineering, design and product evaluation/integration testing.
- Cross Domain Solutions: Completed and published Multinational information sharing Cross-Domain Solutions Information Exchange Requirements study. Began evaluation of Gov't off the Shelf (GOTS) and Customer off the Shelf (COTS) Joint training cross-domain solutions (CDS) in the Joint Advanced Training Technologies Laboratory (JATTL).
- Released version 1.0 of the Joint Low Overhead Driver simulation, which will increase the number of simulation objects within the training synthetic environment while reducing the number of required simulation operators and equipment. This will allow for a more realistic representation of the battle space, to include hostile, friendly and neutral weapon systems, personnel and equipment.

Developed and evaluated Agile Software Capability Intervention (ASCI) products for a distributed test bed prototype in the JATTL focused on the Joint Live Virtual Constructive (JLVC) federation.

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**2009 Accomplishments:**

- Completed deployable spiral 2 (tactical data link and voice/video capability) to provide an enterprise solution to enable near-real time and post event assessment of the Joint Warfighter's performance.
- Continued to develop and integrate Chemical, Biological, Radiological, Nuclear, and Explosive capabilities into the Joint training environment.
- Continued development and transition of an enhanced Computer Network Defense solution that enhances security during high risk events.
- Certified eight Training Systems for interoperability with and integration into the Joint Training Enterprise thereby reducing costs and exercise preparation time.
- Released Joint Rapid Scenario Generation target and infrastructure service for use in the Joint Training Enterprise. This activity will reduce training event support costs to Joint Forces Command, Combatant Commands and Service training elements by reducing or eliminating the need for duplicative target and infrastructure data producing services.
- Released Joint Live Virtual Constructive Federation versions 2 and 3.
- Implemented Net-Centric Enterprise Services (NCES) information exchanges with external commands, departments, and agencies by publishing and subscribing to information through web services.
- OPFOR Capabilities: Concluded development and integration of the OPFOR Command & Control (C2) network on the Fallon Range complex. Develop and integrate an OPFOR Command & Control (C2) Network meeting Navy/USMC Joint Task Force Exercise requirements for the entire East Coast Range Complex. Upgrade Battlefield Communications Simulation System (BCSS) to provide additional Blue Force (BLUFOR) Intelligence, Surveillance & Reconnaissance (ISR) training, tactics & procedures (TTPs) opportunities. Transition upgrades into additional systems being procured for Air Force and Navy training programs. Continue developing traffic simulation algorithms and detailed behavioral models for the Information Operations Traffic Generator while expanding its use throughout the IO Range Network. Continue concealment, countermeasures and decoy (CCD) equipment capabilities and technologies development. Initiate transition planning for CCD technologies into training events. Initiate NextGen Multi-Spectral Threat Emitter system development. Continue developing and integrating full effective radiated power (ERP), reactive response, mobility and remote Command & Control (C2) capabilities into existing systems. Transition these upgraded production variants into training events. Initiate Man Portable Air Defense System upgrade to a two color, Ultra-violet (UV) and Infrared (IR), capability for stimulating additional aircraft survivability equipment systems.
- Continued the development of the collaborative information environment tools, ensuring integration with the Net Centric Enterprise Services and products. Develop transition plans for the developed systems to integrate into Net Centric Enterprise Service solutions for Information/Knowledge Management Capabilities.
- Completed research, planning and engineering to transition JTEN to NextGen JTEN and complete Global Information Grid (GIG) alignment of the JTEN.
- Completed research to identify customer off the shelf/government off the shelf alternative means of extending the JTEN to remote/austere locations and locations where security constraints do not permit persistent installation of JTEN service delivery points.
- Researched communication technologies that will facilitate the distribution of mixed reality training around the globe - moving electrons instead of people to ensure the warfighter's last training experience is as close to the real thing as possible.
- Continued research and development efforts to mitigate or resolve identified Joint training cross-domain information sharing issues/shortfalls/gaps.
- Developed and tested coalition training network reference architecture with the Navy and the Air Force.

**C. Other Program Funding Summary:**

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JNTC O&M Funding	56.984	58.464						
JNTC Procurement Funding	15.990	16.192						

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Comment:

**D. Acquisition Strategy:**

**E. Major Performers:**

Recipients	City/State	Description
General Dynamics Information Technology (GDIT)	Suffolk, Va	Joint Advance Training Technology Lab (JATTL) support, Award date Feb 2004.
NAVAIR Warfare Center	China Lake, CA Pt. Mugu, CA	Instrumentation and OPFOR support
Program Executive Office Simulation, Training and Instrumentation (PEOSTRI)	Patuxent River, MD	Multiple contracts
Air Force Electronic Systems Center	Orlando, FL	OPFOR support
Missile and Space Intelligence Agency	Hanscom AFB, MA	OPFOR support
US Army CECOM	Redstone, AL	OPFOR support
National Simulation Center	Ft. Monmouth, NJ	Modeling and Simulation support
NAVAL SPACE WARFARE CENTER (SPAWAR)	Ft. Leavenworth, KS Charleston, SC	Communications support

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COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P759 Joint Training Capability Analysis of Alternatives (TCAoA)	10.666	3.570						

**A. Mission Description and Budget Item Justification:** Joint Force Trainer supports development capabilities in Joint simulations to eliminate training gaps identified by the COCOMs and in accordance with SECDEF's T2 objectives. In accordance with the Unified Command Plan (2006), USJFCOM JWFC leads the development and implementation of system architectures that directly support distributed Joint training requirements of the other COCOMs, Joint Task Forces, and Defense Agencies. The underlying premise of TCAoA centers on privatization of training support and development with the competitive market forces driving the development of technologies to reduce the cost of training. The creation of a JFCOM Joint Oversight Board establishes a governance process to review the effectiveness of the tools and the providers. Management of the toolkit, which is a set of capabilities, and system certified technologies that are interoperable and acceptable for usage within the Joint training environment. This Joint Force Trainer Toolkit supports Joint Exercises, Doctrine, Lessons Learned, Distributed Learning and Modeling & Simulation will be a government-led Consortium with industry and academia that ensures the tools in the toolkit comply with the requirements of the common architecture. A number of emerging technologies from Industry, Government and Academic sources that offer the greatest potential to reengineer Joint training are considered for training use. These technologies include Light Simulations, Light Federations, Story-Driven Training, Massively-Multi-player Games, Training Objective Driven Simulation, Embedded Training, and Joint Community Unique Simulations

**B. Accomplishments/Planned Program:**

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P759 Joint Training Capability Analysis of Alternatives (TCAoA)	10.666	3.570		

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**FY 2008 Accomplishments:**

- Completed analysis of the National Guard Bureau's (NGB) training and certification requirements to train its 17 Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Enhanced Response Force Package (CERFP) teams and included requirements in NGB training package.
- Developed an innovative acquisition strategy and a performance based work statement to support the NGB with an innovative training package for its role for in Homeland Defense, specifically in CBRNE incident management.
- Researched the M&S data, tools and standards available and populated the web-based tool vendor's site for use by government, academia, and industry that is used in satisfying requirements of RAND Corporation study. The RAND study, as requested by Under Secretary of Defense for Personnel and Readiness, provides a detailed implementation and evaluation plan for TCAoA prototypes.
- Developed a comprehensive innovative individual and collective training package for a unit comprising a Chemical, Biological, Radiological, Nuclear, and Explosive Enhanced Response Force Package (CERFP).
- Developed and in process to deliver a training package through an innovative acquisition strategy to recertify a 186 man National Guard, CERFP unit headquartered in Austin, Texas in May 2009.
- Established forum to initiate open standards for data models and federation object models to reduce integration costs.
- Developed solicitation for use case nominations for Joint training requirements to support FY09 innovative acquisition process as outlined under TCAoA Alt#4 principles.
- Developed criteria for training situations and metrics for evaluation of NGB CERFP training.
- Developed and implemented an acquisition strategy for the Joint Knowledge Online hosted Immersive Learning Environment (ILES) web based, small group training capability facilitating the training needs of deploying warriors to joint task forces staffs throughout the world.

Developed and implemented an acquisition strategy for the Joint Knowledge Online hosted Virtual Culture Awareness Trainer (VCAT) web based, gaming training capability supporting the cultural awareness training needs of deploying joint warriors to Central Command areas of operations.

**FY 2009 Accomplishments:**

- Provided additional CERFP recertification training to the CERFP teams at Columbus, Ohio [March], Omaha, Nebraska [June], and Arden Hills, Minnesota [September].
- Established open standards for data models and federation object models to reduce integration costs.
- Developed prototype COCOM training capabilities based on the following technologies; Massively Multiplayer Games, Story-Driven Training, and Light Simulations/Federations.
- Developed a use case for training United States Africa Command (AFRICOM) staff in mission rehearsal using non-kinetic scenarios.
- Developed criteria for training situations and metrics for evaluation of training.
- Integrated Real World software virtual environment into the Small Unit Immersive Training Environment (SUITE) Joint Capability Technology Demonstration (JCTD).

**C. Other Program Funding Summary:**

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Joint Training Capability Analysis of Alternatives (TCAoA)	0	0						

Comment:

**D. Acquisition Strategy: Not Applicable**

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**E. Major Performers:**

Recipients	City/State	Description
Northrop Grumman/Cubic/Booz Allen Hamilton	Suffolk, Va	Immersive Learning Environment (ILES)
Alelo Tactical Language Training LLC	Los Angeles, Ca	Virtual Cultural Awareness Trainer (VCAT)
Program Executive Office Simulation, Training, Ranges and Instrumentation (PEO STRI)	Orlando, Fl	Program oversight for data standards, architecture and ontologies.
General Dynamics Information Technology	Suffolk, Va	Conduct system integration and validation of development programs.
Defense Advanced Research Projects Agency (DARPA)	Various	Develop and transition immersive technologies into Joint training programs.

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P761 Joint Simulation System (JSS)	10.366	9.346						

**A. Mission Description and Budget Item Justification:**

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In accordance with Secretary of Defense tasking JSS will fund research, development, testing and integration of enhancements to Joint simulations that eliminate COCOM identified training shortfalls. USJFCOM leads the development, integration, and operation of systems and architectures that directly support distributed Joint training requirements of other COCOMs, Joint Task Forces, and Defense Agencies. To that end, JSS provides the Joint training environment with the ability to insert emerging research and development technology to enhance existing systems in Joint, Live, Virtual and Constructive (JLVC).

**B. Accomplishments/Planned Program:**

**Accomplishments/Planned Program Title:**

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
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P761 Joint Simulation System (JSS)

10.366

9.346

**FY 2008 Accomplishments:**

- Released version 1.0 of the Joint Multi-Resolution Model Federation in February, 2008 as part of the Joint Training Toolkit. This capability will facilitate seamless training at both the tactical and operational levels of war, enhancing the training experience while reducing event simulation support costs. This capability was purchased by NATO and will be used by NATO to support training with coalition partners.
- Enhanced the Joint Conflict and Tactical Simulation, Low Overhead Driver to reduce exercise operation costs.
- Incorporated chemical, biological, radiological, and nuclear effects into the Joint, Live, Virtual, and Constructive Federation.
- Enhanced electronic warfare, or jamming, in the Joint, Live, Virtual, and Constructive Federation.
- Provided distributed data services to reduce exercise costs for the Department of Defense.
- Established open standards for data models and federation object models to reduce integration costs.
- Incorporated the U.S. Army non-kinetic effects model into the Joint, Live, Virtual, and Constructive Federation.

**FY 2009 Accomplishments:**

- Released version 2.0 of the Joint Multi-Resolution Model Federation as part of the Joint Trainer Toolkit. This capability will improve tactical-to-operation level of warfare interactions and incorporate additional logistics and intelligence functionality.
- Enhanced logistics modeling-and-simulation capabilities to fully support global deployment requirements of U.S. Transportation Command.
- Implemented a civilian infrastructure model in the Joint Theater Level Simulation.
- Implemented a psychological operations capability in the Joint, Live, Virtual, and Constructive Federation.
- Established data services for terrain, targeting, and infrastructure, to provide faster and higher-fidelity mission rehearsals.

**C. Other Program Funding Summary:**

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
	0	0						

Comment:

**D. Acquisition Strategy: Not Applicable**

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**E. Major Performers:**

Recipients	City/State	Description
Lawrence Livermore	Suffolk, VA	Joint Conflict and Tactical Simulation (JCATS)
Northrop Grumman	Suffolk, VA	Joint Support Team/Joint Software Support Facility (JSSF) Contract Support
Northrop Grumman	Orlando, FL	Joint Support Team/Joint Development Integration Facility
Rolands & Associates	Monterey, CA	(JDIF) Contract Support Joint Theater Level Simulation (JTLS)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P764 Irregular Warfare (IW)	0	0						

**A. Mission Description and Budget Item Justification:**

There is an immediate and critical need to develop immersive training solutions for small combat units to conduct Irregular Warfare (IW) operations in complex urban and restrictive terrain environments. The U.S. military's dominance in traditional modes of combat has pushed its adversaries toward irregular and asymmetric tactics. Moreover, the threat environment is becoming increasingly complex due to mega-urbanization, the presence of large numbers of noncombatants in any military action, and the evolving dynamics of the information environment. Meeting the challenges of the current and future IW environment requires more tactically-enhanced small combat units. Hence, the Department of Defense must prepare small combat unit leaders/leader teams to make tactical and ethical decisions that carry significant strategic implications. Additionally, leaders and staffs at all levels must understand their role in supporting this type of fight: one that can move from non-kinetic to kinetic and back in seconds, and one where the people are the battlefield and not just collateral actors. Accordingly, DoD must specifically train and broadly educate its joint forces to understand cultures and populations, to thrive in chaotic environments, to recognize and respond creatively to dynamic and demanding situations, and to operate with coalition, interagency, and host nation partners as the norm and not the exception. To accomplish IW training objectives, the Department requires training facilities that fully immerse the lower-level units in a live, virtual, and constructive training environment that replicates as closely as possible the conditions of today's and tomorrow's battlefield. These training facilities must allow the unit to utilize the full range of assets that will be available to them in actual missions including their individual equipment, individual and crew-served weapons, command and control systems, navigation systems, and target location/designation systems. It will link joint enablers such as Intelligence, Surveillance & Reconnaissance (ISR) and joint fires from many different locations across the joint force, as well as link training units' company, battalion, and regiment/brigade, which may also be conducting immersion training simultaneously. The need is to identify those common training needs and solutions that require a Joint approach across the Services. The strategy will be to leverage and integrate the existing and emerging Coalition, Inter-agency, Service and COCOM capabilities that can address the needs of the warfighter to train in an IW environment.

**B. Accomplishments/Planned Program:**

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

May 2009

APPROPRIATION/ BUDGET ACTIVITY <b>RDTE, Defense Wide 06</b>	PE NUMBER AND TITLE <b>0603757D8Z TRAINING TRANSFORMATION (T2)</b>
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<b>Accomplishments/Planned Program Title:</b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P764 Irregular Warfare	0	0		

**FY 2008 Accomplishments:** Not applicable.

**FY 2009 Accomplishments:** Not applicable.

<b>C. Other Program Funding Summary:</b>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
IW O&M Funding	0	0						
IW Procurement Funding	0	0						

Comment:

**D. Acquisition Strategy:** Not Applicable

**E. Major Performers:** TBD

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P769 Joint Knowledge Development & Distribution Capability (JKDDC)	0	0						

**A. Mission Description and Budget Item Justification:** The Departments requirement is to develop a Joint Individual Training Toolkit of web enabled individual and small group training products and services. Products and services are developed in response to JKDDC stakeholder (COCOMs, Services, and Combat Support Agencies) prioritized training requirements. JKDDC supports a career-long joint learning continuum, joint professional military education and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. This supports advanced technology development and enhancement for the Joint Advanced Distributive Learning training community. JKDDC advanced technology initiatives principally include the Virtual Cultural Awareness Training (VCAT) web-based gaming and Immersive Learning Environments (ILES) small group training requirements, both accessible via the Joint Knowledge Online (JKO) Learning Management System (LMS). This capability facilitates the training and preparation of tens of thousands of military and civilian personnel deployment to combat theaters of operation prior to serving in their assigned Joint Task Force (JTF) billets. Specifically, VCAT supports one of the top three identified training shortcomings of returning warriors from United States Central Command (CENTCOM) based JTFs (cultural awareness training). JTF ‘battle staffs’ will be adequately trained, warriors as individuals and the staffs collectively, based on ILES development, overcoming existent training inadequacies for joint warriors. Significant training deficiencies will be mitigated in critical ‘go to war’ tasks.

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

May 2009

APPROPRIATION/ BUDGET ACTIVITY <b>RDTE, Defense Wide 06</b>	PE NUMBER AND TITLE <b>0603757D8Z TRAINING TRANSFORMATION (T2)</b>
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**B. Accomplishments/Planned Program:**

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P769 Joint Knowledge Development & Distribution Capability (JKDDC)	0	0		

**FY 2008 Accomplishments:** See TCAOA ALT 5 section for the ILES and VCAT efforts.

**FY 2009 Accomplishments:** Not applicable.

<b><u>C. Other Program Funding Summary:</u></b>	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JKDDC O&M Funding	11.194	10.004						
JKDDC Procurement Funding	0	0						

Comment:

**D. Acquisition Strategy:** Not Applicable

**E. Major Performers:**

Recipients	City/State	Description
Northrop Grumman	Suffolk, VA	Immersive Learning Environment (ILES)
Cubic	Suffolk, VA	Immersive Learning Environment (ILES)
Concurrent Technologies Companies	Suffolk, VA & Johnstown, PA	Immersive Learning Environment (ILES)
Alelo Tactical Language Training, LLC	Los Angeles, CA	Virtual Cultural Awareness Trainer (VCAT)

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

May 2009

APPROPRIATION/ BUDGET ACTIVITY  
**RDTE, Defense Wide 06**

PE NUMBER AND TITLE  
**0603757D8Z TRAINING TRANSFORMATION (T2)**

Booz Allen Hamilton

Suffolk, VA

Immersive Learning Environment (ILES)

COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate
P760 Joint Combined Training Center (JCTC)	0	0						

**A. Mission Description and Budget Item Justification:** Supports USPACOM execution of SECDEF initiative with Australian Defence Forces to strengthen bilateral cooperation by enhancing the Joint Combined Training Capability (JCTC). Provides for design and implementation of prototype solutions for US-Australian forces to train at instrumented Force-on-Force, Joint Fires, and Electronic Warfare ranges in Australia that will be fully interoperable with and extend the capabilities of USJFCOM's Joint National Training Capability.

**B. Accomplishments/Planned Program:**

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
P760 JCTC	0	0		

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

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

**RDTE, Defense Wide 06**

**0603757D8Z TRAINING TRANSFORMATION (T2)**

**FY 2008 Accomplishments:** Not applicable.

**FY 2009 Accomplishments:** Planned activities:

- Conduct a technical study to determine the next phases for developing the Shoal Water Bay Training Area (SWBTA) for instrumented, live, force-on-force engagements and training by U.S. and Australia Defense Forces (ADF).
- Complete site surveys, technical research, and prototype designs for fully instrumented, remotely observable joint fires ranges with distributed control measures at the Bradshaw Field Training Area (BFTA) in Northern Australia and the Cultana Training Area (CUTA) in Southern Australia.
- Conduct a telecommunications study to develop a technical solution to connect BFTA's synthetic environment to the Australian Defense Training and Experimentation Network (DTEN) and USJFCOM's Joint Training and Experimentation Network (JTEN) in support of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.
- Conduct a follow-on telecommunications study to develop a technical solution to link multiple synthetic environments created throughout Australia (including SWBTA, BFTA, and CUTA) with the Australian DTEN and USJFCOM JTEN in support of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.
  - Provide technical advice and assistance to develop a deployable Exercise Control Center to command and control activities of US-Australian forces training and exercising in Australia or distributively throughout the Pacific theater.

**C. Other Program Funding Summary:**

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
JCTC O&M Funding	0	2.160						

Comment:

**D. Acquisition Strategy:**

**E. Major Performers:**

**Recipients**

Contractors (TBD)

**City/State**

Hawaii and Australia

**Description**

Seven (7) Contractor Manyear Equivalentents (CME) performing technical studies, site surveys, and prototype designs for training, exercise, and related telecommunications solutions.