Exhibit R-2, RDT&E BUDGET ITEM JUSTIFICATION							Date: February 2005	
APPROPRIATION0/BUDGET ACTIVITY RDT&E/Defense-Wide/BA 3					R-1 ITEM NOMENCLATURE Joint Warfighting, PE 0603727D8Z			
Cost *(In Millions)*	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total Program Element (PE) Cost	9.949	10.696	10.205	10.476	11.209	11.231	11.461	11.724

A. Mission Description and Budget Item Justification

In May 1998 the Secretary of Defense appointed U.S. Joint Forces Command (formerly the U.S. Atlantic Command), as the Defense Department's Executive Agent for Joint Experimentation. Subsequently, the Department realigned resources to support the Joint Forces Command's new role. In FY 1999 funds from this Joint warfighting Program Program Element (PE: 0603727D8Z) were redirected to support the initial stand-up of Joint Forces Command's Joint Experimentation Directorate. Funding for joint experiments was transferred to Joint Forces Command through the Navy and PE 0603727N in FY 2000 and was established to provide Joint Forces Command with its own funding source. Funding to support the Joint Advanced Warfighting Program (JAWP) concept development, the Information Technology Backplane (ITB), and Technology Feeder Support (TFS) for joint experimentation was retained in the JWP PE. The Defense Adaptive Red Team (DART) was initiated as a pilot project in FY 2002. DART has proven to be very successful by providing an independent team of experts to challenge emerging operational concepts from their origin through the experimentation process. DART is now included in the JWP program across the FYDP.

The Joint Warfighting PE supports four related activities: the JAWP, the ITB, DART and TFS for Joint Experimentation. While these activities strongly support Joint Forces Command's joint experimentation efforts, a separate program element is necessary since the activities support other organizations in addition to Joint Forces Command. Additionally, because of the evaluation role a separate program element, with OSD oversight, provides a necessary degree of independence.
The Joint Advanced Warfighting Program (JAWP) was established by the Office of the Secretary of Defense (OSD), with the support of the Vice Chairman of the Joint Chiefs, to serve as a catalyst for innovation and change. This program's focus is on

assisting in the formulation and assessment of advanced concepts and capabilities, plus identifying enabling technologies and integration options for the Department. These concepts drive changes in the doctrine, organization, training, materiel, leadership, people, and facilities (DOTMLPF) of the Services. The JAWP serves an essential independent role in identifying, exploring and evaluating breakthrough war fighting capabilities. It helps capture and builds on lessons learned from joint contingency operations and earlier joint and Service experimentation. From that foundation, it identifies and helps formulate breakthrough joint concepts, explores their effectiveness by designing and conducting joint experiments, and helps streamline implementation processes. Its work compliments and supports the activities of Joint Forces Command, the Joint Staff, and the OSD by providing a uniquely informed independent source of advice. In identifying and elaborating innovative joint concepts and capabilities and associated enabling technologies, the JAWP helps integrate related Service efforts and those of Combatant Commanders and Defense agencies.

Through its influence in a wide range of DoD transformation efforts, the JAWP promotes integration, bringing greater coherence to efforts that would otherwise be tangential or disconnected. The JAWP is composed of both civilian and military members. Its military component is the JAWP Analytical Project Office (JAWP-APO), a jointly manned activity established by the Deputy Secretary of Defense, consisting of equal numbers of military personnel from all four Services. The active duty military members provide a current operational perspective to concepts under investigation and serve as a vital link to ongoing relevant activities in the Services. The Information Technology Backplane (ITB) provides an advanced network infrastructure that extends commercial capabilities to meet JV2020 needs. Information Superiority is a key JV2020 building block and the ITB provides the means to experiment with the digital transmission capabilities that are projected to be available within five years (from each funding year). The ITB is not a new physical network. It is a virtual network that capitalizes on existing physical networks such as the Defense Information Systems Network (DISN), the DISN Asynchronous Transfer Mode Service Network (DATMS), the Defense Research and Engineering Network (DREN), and the experimental Advanced Technology Demonstration Network (ATDnet). The ITB has many users from sites served by existing networks but the funding included in this PE is the incremental funding needed to support joint experimentation. For example, this PE provides the circuit costs to extend the ITB from the experimentation site to the nearest point on the backplane (where no other network exists), and only the "extra" backplane costs generated by the Joint Warfighting Experiments. Since joint experiments are very dependent on advanced distributed simulation, or on limited, live, command post exercises that are being driven by simulations, a robust high-

performance network is needed to interconnect the various sites. These simulations press the state of the art in networking capability, including that of requiring high-bandwidth, low-latency Type-I encryption for protected communications. The ITB also supports new bandwidth-intensive applications such as video teleconferencing, high definition television and large file transfers.

The third effort supported by this PE is Technology Feeder Support (TFS) for joint experiments. There are many Technology Demonstrations (TDs), Advanced Technology Demonstrations (ATDs), and Advanced Concept Technology Demonstrations (ACTDs) that can provide advanced technologies to support joint experiments. For example, the Joint Staff has prepared 72 desired operational capabilities based on JV2020 concepts and 21st Century Challenges. For each Challenge, the Joint Staff has prepared roadmaps that provide opportunities to assess each Challenge. The roadmap for the battlefield awareness challenge shows 42 ACTDs that have the potential to demonstrate some aspect of a desired operational capability supporting battlefield awareness. This effort provides technology managers the resources to expand the scope of a test or demonstration to collect data for the joint staff or JFCOM, thereby leveraging the OSD and Service ACTD investment. The final effort supported by this Program Element is the Defense Adaptive Red Team (DART), which was established as a separate project starting with the FY 2003 budget. The DART's mission is to challenge JFCOM, JAWP, the Joint Staff and others in the DoD to develop more robust and resilient concepts for conducting joint operations in the future. It does so through four sets of activities:

(1) Involvement in the planning and implementation of JFCOM, JAWP and Joint Staff concept development and experimentation; (2) Support of other combatant commands; (3) Support of the ACTD and Foreign Comparative Test Programs; and (4) Development and refinement of red teaming best practices. The DART develops and implements wargames and other activities as appropriate, and provides independent reports relating to its activities. A senior advisory group meets annually to review the DART's activities and accomplishments, and to recommend appropriate changes in focus or operations.

B. Program Change Summary

	FY 2004	FY 2005	FY 2006
Previous President's Budget:	10.284	9.936	10.268
Current FY 2006 President's Budget Submission:	9.949	10.696	10.205
Adjustments to Appropriated Value:	-0.335	+0.760	-0.063
Congressional Program Reductions:	-0.074	-0.240	
Congressional Rescissions:			
Congressional Increases:		+1.000	
Reprogrammings:			
SBIR/STTR Transfers:	-0.261		
Other:			-0.063

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Performance Metrics:

By FY 2005 conduct Urban Resolve Experiment.
By FY 2005 initiate on-going interactive experimentation plan.
By FY 2005 provide assessment plan addressing lessons learned from GWOT.
By FY 2006 identify implementation path for joint command and control.
By FY 2006 provide Combatant Commands with experimentation/demonstration plans.
By FY 2007 continue to provide operational concept support to COCOMS.

Exhibit R-2a RDT&E Budget Item Justification	Date: February 2005
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A. Mission Description and Budget Item Justification

The Joint Warfighting PE supports four related activities: the Joint Advanced Warfighting Program (JAWP), the Information Technology Backplane (ITB), the Technology Feeder Support (TFS) and the Defense Adaptive Red Team (DART). Each of these activities is associated with the Joint Experimentation role assigned to the U.S. Joint Forces Command (USJFCOM). While these activities strongly support Joint Forces Command's joint experimentation efforts, a separate program element is necessary since the activities support other organizations in addition to Joint Forces Command (e.g., OSD, JCS, and other CoComs). Additionally, because of the evaluation role a separate program element, with OSD oversight, provides a necessary degree of independence.

B. Program Accomplishments and Plans:

	FY 2004	FY 2005	FY 2006	FY 2007
Joint Advanced Warfighting Program (JAWP)	4.600	4.800	5.000	5.150

- FY 2004 Accomplishments – The JAWP supported JFCOM's Joint Center for Lessons Learned by identifying and collecting lessons from the Global War on Terrorism. The JAWP conducted the collection and analysis effort from OSD, the Joint Staff, the Intelligence community, and the departments of State and Justice. It also coordinated and help integrate the overall global lessons learned effort from a JAWP-led cell at headquarters SOCOM and a JAWP-led analysis cell at JFCOM. That effort continued throughout the FY and involved more than two thirds of the JAWP's resources. JAWP also lead and helped man JFCOM's Jont Urban Resolve Experiment. The experiment explored joint commands and control organization; integration of manned and unmanned capabilities for reconnaissance and combat applications; and innovative ways to overcome opponents protective measures in an urban environment. Vulnerability assessments

and "Red Teaming" were conducted to improve the experiment's validity and robustness. Complimentary efforts for DUSD (AS&C) and other DoD departments was used to identify opportunities to leverage and integrate Service, allied and other agency programs. The latter effort helped integrate the independent joint command and control initiatives of United States Pacific Command (USPACOM), USCENTCOM, JFCOM, and Service command and control structure worldwide. A component of the task is to help identify and exploit opportunities facilitating the early transition of new concepts and technologies to operational capabilities. JAWP concluded its support for JFCOM in its assumption of duties as DoD's Executive Agent for Joint Urban Operations in 2004 and concurrently completed its support to OSD and the Joint Staff on the next Unified Command Plan. Finally, JAWP lead an effort supporting OSD and the Joint Staff on developing key concepts for capabilities based planning.

- FY 2005 Plans - JAWP will continue support of the Department's transformation objectives through joint experimentation and joint concept development. Specifically, the JAWP will continue its Urban Resolve experiment and initiate a continuing experiment extending through FY 2006 to exploit insights gained from earlier experimentation. It will concurrently help identify an implementation path for a worldwide joint command and control structure emphasizing the creation of standing Joint Headquarters as the command and control foundation on which future joint operations will be based.
- FY 2006 Plans – JAWP will continue support of the Department's transformation objectives through joint experimentation and joint concept development. Specifically, the JAWP will expand its support of the Combatant Commands by assisting them in the formulation of ACTDs, conducting experimentation that explores the comparative advantages of operational capability alternatives, and assisting them with the refinement of operational concepts supporting their contingency planning responsibilities.
- FY 2007 Plans – JAWP will continue to support the Department's transformation objectives through joint experimentation concept development. JAWP will continue its support to the Combatant Commands in the refinement of operational concepts supporting their contingency planning responsibilities.

	FY 2004	FY 2005	FY 2006	FY 2007
Information Technology Backplane (ITB)	1.442	1.696	1.905	1.963

- FY 2004 Accomplishments - The ITB supported wide-area network connectivity for joint warfighting experimentation and continued transition of emerging technology from advanced research network test beds. Information assurance and other security technologies were tested and deployed. Fielded multicast and net-flow monitoring and analysis tools to determine and map traffic-flow prioritization to WAN

Quality of Service (QoS). Supported JFCOM, FBE and ad-hoc experimentation including JFCOM's Continuous Experiment Environment (CEE).

- FY 2005 Plans - The ITB will continue support for wide-area network connectivity for joint warfighting experimentation, as will the ongoing task of transitioning emerging technology from advanced research network test beds. ITB will make contribution to emerging technology from advanced research network test beds. ITB will make contributions to emerging Service Oriented Architecture Enterprise Services through the Evaluation Capabilities Modules efforts. ITB will continue to support net centric functional capabilities definition and exploration. Information assurance and other security technologies for ultra high bandwidth and networking technologies will continue to be developed, tested and deployed.
- FY 2006 Plans – The ITB will provide technology assessments, participate in industry and government consortia and continue to evolve Warfighter access to leading edge networking technologies. ITB will continue support for wide-area network connectivity for Joint Warfighting experimentation. ITB will contribute to emerging Service Oriented Architecture Enterprise Services through the Evaluation Capabilities exploration. Information assurance and other security technologies and concepts for ultrahigh bandwidth and networking technologies will continue to be developed, tested and deployed.
- FY 2007 Plans – The ITB will continue support for wide-area network connectivity for Joint Warfighting experimentation. Security technologies and concepts for ultrahigh bandwidth and networking technologies will continue to be developed, tested and deployed.

	FY 2004	FY 2005	FY 2006	FY 2007
Technology Feeder Support (TFS)	1.157	1.200	1.200	1.200

- FY 2004 Accomplishments - TFS project ensured that technology applications (ACTDs /ATDs) were injected into Pinnacle Vision 2004. It assisted with focusing the Standing Joint Force Headquarters and Theater Effects Based Operations so significant effort could be applied to ensure that appropriate technologies to support these operational concepts are available to enhance experimentation efforts with combatant commanders.
- FY 2005 Plans - The major effort planned for support by the TFS project will be to ensure that technology applications (ACTDs /ATDs) are injected into FY 2005 experiments conducted by JFCOM and other combatant commanders. It is anticipated that implementation of the Standing Joint Forces Headquarters and other Transformation efforts will continue to be the focus of experimentation efforts. Technology resources will be focused to support this effort. The support of combatant commander (other than JFCOM) experimentation will continue.

- FY 2006 Plans – Continue to ensure that technology applications (ACTDs/ATDs) are injected into experiments conducted by JFCOM and other combatant commanders. The support of combatant commander (other than JFCOM) experimentation will continue.
- FY 2007 Plans – Continue to provide resources to USPACOM and USJFCOM for Joint Experimentation and oversight to new technologies and concepts.

	FY 2004	FY 2005	FY 2006	FY 2007
DoD Adaptive Red Team (DART)	2.000	2.000	2.100	2.163

- FY 2004 Accomplishments – In response to recommendations from a Senior Advisory Group, DART shifted its primary emphasis away from Joint Forces Command (JFCOM) to supporting Combat Command (COCOM) requirements. DART actively supported US Pacific Command's (PACOM) Biological Weapons Countermeasures Initiative, US Southern Command's (SOUTHCOM) work with the Columbian Military on defeating the FARC, US Northern Command's (NORTHCOM) exercise program, and US Forces Korea's (USFK) assessment of warning of possible North Korea attack. Ongoing, albeit reduced levels of participation with JFCOM included completion of a red team review of Joint Forces Command's Operation Iraqi Freedom After-Action Report and red teaming of urban operations concepts. DART continued to directly support DOD with activities relating to Counter-Bomber 2 (CB2) and Active Denial System (ADS) ACTD programs. In addition, DART provided a red team assessment of alternative means to defeat hard and deeply buried targets. Finally, DART published several red teaming "best practices" documents, with particular focus on the global war on terrorism and counter-insurgency operations in Iraq.
- FY 2005 Plans- DART will continue to support PACOM, SOUTHCOM. Its support to NORTHCOM and USFK is expected to have concluded; however, it will begin red team support to STRATCOM on strategic deterrence and related areas. Urban Operations support to JFCOM is envisioned. ACTD support will continue, including both CB2 and ADS. Valuable technical, as well as employment and deployment considerations are invaluable in refining the residual products for DOD. Best practices and Senior Advisory Group activities will continue. Finally, it is expected that DART will examine the current and potential role of red teaming including competitive analysis in intelligence, looking critically at how certain products are produced.
- FY 2006 Plans – The DART will again support JFCOM, JAWP and Joint Staff concept development and experimentation efforts. The DART expects to complete its work with PACOM on countering biological weapons, and will extend this work by providing red teaming and wargaming that can bring lessons learned to other Combatant Commands. Efforts relating to combating terrorism, including continued work with SOUTHCOM, will continue. In addition, it is expected that work with STRATCOM will continue, and with NORTHCOM or another

COCOM will be initiated. ACTD support will continue, as the DART expects to complete work on the CB2 and ADS ACTDs and initiate red teaming of several new starts (TBD). Once again, technical, employment and deployment considerations raised by the DART are expected to be invaluable in refining the residual products for DOD. Work on defining red teaming best practices will continue. A Senior Advisory Group will review the DART's activities and accomplishments, and recommend appropriate changes in it focus and operations.

- FY 2007 Plans – DART will continue to support JFCOM, JAWP and Joint Staff concept development and experimentation efforts, as well as several COCOMs. Technical employment and deployment considerations raised by the DART are expected to be invaluable in refining the residual products for DOD. Work will continue on defining red teaming best practices will continue. A Senior Advisory Group will review the DART's activities and accomplishments, and recommend appropriate changes in its focus and operations.

	FY 2004
(JFCOM Rapid Database Development) Congressional Plus Up	0.750

- FY 2004 Accomplishments – The Homeland Security and Defense (HLS&D) Modeling and Simulation R&D initiative accomplished several critical tasks. First and foremost was the development and down selection of models supporting training and planning for interagency operations at the Federal, State, Tribal, Regional and Local levels. Just as critical, the model emphasized crisis response and emergency management for first and early responders, as well as emergency management centers at all levels. The capability also expanded the ability to replicate the effects of all types of weapons of mass destruction and mass casualty consequence management, especially in an urban environment. The model will also stimulate both the Command and Control and Information Systems for all agencies involved. Finally, the project has resulted in the development of enhanced models of the military and civilian decision support processes and communications infrastructures employed at all levels during HLS&D events.

	FY 2005
Joint Navigational Warfare: Congressional Plus Up	1.000

- FY 2005 – The Joint Navigational Warfare is a program that is run by the National Security Agency (NSA) with oversight by OASD (NII). These funds will be transferred to the appropriate program office as directed by OASD (NII) to support the NSA project, ensuring the Department uses the funds per the intent of Congress. These resources are aimed at supporting a "Navwar" jamming test in the Spring of 2005 to exercise the SIGINT communities ability to detect, geo-locate, and disseminate an evolving Global Positioning System (GPS) jamming threat.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: N/A

E. Major Performers: Institute for Defense Analyses (IDA), Alexandria, VA