

RDT&E Budget Item Justification Sheet (R-2 Exhibit)							Date: February 2003	
Appropriation/Budget Activity RDT&E, Defense Wide/BA-3				R-1 Item Nomenclature Advanced Concept Technology Demonstration (ACTD): PE 0603750D8Z				
Cost (\$ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
ACTD/P523	157.762	200.881	213.361	214.183	202.818	205.048	209.775	214.145

## A. Mission Description and Budget Item Justification

**BRIEF DESCRIPTION OF ELEMENT:** The Department of Defense (DoD) recognizes the need to rapidly develop and field new technological capabilities, and to explore innovative and transformational concepts associated with those capabilities. Such advances are critical to the objective of supporting the Chairman's *Joint Vision 2020*. Advanced Concept Technology Demonstrations (ACTDs) are low-to-moderate risk vehicles for pursuing those objectives. ACTDs are capability demonstration and evaluation programs in which the technology and operational concepts are explored in parallel by the military end-users. The demonstrations typically involve a material development organization that tailors the mature technology applications, and a warfighting sponsor that assesses military utility. In addition to stimulating innovation, ACTDs offer three other significant opportunities. They provide experienced combat commanders with an opportunity to develop operational concepts and operational requirements to fully exploit the technologies provided. They allow the users an opportunity to assess the military utility of the proposed capability prior to a major acquisition commitment. They also provide military Services with a mechanism for compressing acquisition cycle time, significantly improving their response to priority operational needs. As such, ACTDs are a key element of the DoD acquisition excellence process. They do not substitute for formal DoD acquisition procedures, but can speed effective operational employment of technologies which are verified by combatant commands to have demonstrated military utility. Since FY 1999, ACTDs also are a key contributor to the Joint Experimentation process under U.S. Joint Forces Command (JFCOM). The Deputy Under Secretary of Defense (Advance Systems and Concepts) (DUSD (AS&C)) works closely with JFCOM on experimental Campaign Plans to insure ACTDs integrate technology and develop new concepts of operation into future joint experiments. ACTDs continue to fill a critical and unique role in addressing joint warfighting requirements. In many cases, ACTDs focus attention on capabilities required by joint commanders that cannot be satisfied by the acquisition investment of a single military service and address joint capabilities not ascribed to a single Service's core military mission.

Ideally, the Military Departments and Defense Agencies provide most of the funding (60-80 percent) for ACTDs. This encourages Service/Agency commitment to the ACTD. Funding from this program element is used: 1) to support actual demonstrations and experimental employment; 2) to provide hardware, software and communications to demonstrate military utility; and 3) to fund transition, interim capability operations and support for up to two years after the operational demonstration phase of the ACTD. This one-to-two-year phase provides the Services, Agencies, and operators with adequate time to continue to address the issues of supportability, maintainability and training identified by the ACTD.

Since program commencement in 1994, DUSD(AS&C) has initiated 115 unclassified ACTDs. Forty-five of these were completed as of the end of Fiscal Year 2002, resulting in 120 distinct products which have evolved as follows: (a) eight entered engineering and manufacturing development; (b) thirty-three have transitioned to acquisition; (c) forty-five have integrated with current operational software systems, such as Global Command and Control System (GCCS) and Global Combat Support System (GCSS); and (d) thirty-six hardware-based solutions have previously been or currently are operationally deployed. Over twenty ACTDs were used during Operation Allied Force, some of which are still actively employed in peacekeeping operations. Subsequently, more than thirty ACTDs are employed in support of Operations Enduring Freedom and Noble Eagle, as well as for Homeland Security operations.

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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2a Exhibit)</b>		<b>Date:</b> February 2003
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-wide/BA 3	<b>R-1 ITEM NOMENCLATURE</b> ADVANCED CONCEPT TECHNOLOGY DEMONSTRATIONS (PE 0603750D8Z)	

Science and Technology (S&T) and warfighter communities submit candidate ACTDs for an annual review cycle. The candidates proposed by the S&T community reflect technological opportunities enabled by recently demonstrated technology. The candidates proposed by the warfighter community (Joint Chiefs of Staff (JCS), Unified Combatant Commanders, Military Services and Federal agencies respond to a deficiency in military capability or to an emerging military need. For each candidate, it is necessary to confirm that the proposed concept is based on technology that is sufficiently mature for rapid exploitation, and that the capability addresses a priority military need. Candidates are organized into the *Joint Vision* operational areas of Dominant Maneuver, Precision Engagement, Full Dimensional Protection, Focused Logistics, Network-Centric Warfare (Information Superiority) and Full Spectrum Dominance.

The maturity of the technology and accuracy of costing associated with the proposed capability is assessed by the DUSD (AS&C) with assistance of senior members of the Science and Technology community (known as the Breakfast Club). The Joint Requirements Oversight Council (JROC) validates mission need and establishes the priority of the ACTD candidates by military need. The principal management tools for the ACTD are the Implementation Directive and Management Plan. Each approved ACTD will be described in these top-level documents which provide details of the demonstration/evaluation, the main objectives, approach, critical events, measures of success, transition options, participants, schedule, and funding. The review of the candidates for FY 2003 ACTDs began in January 2002. Sixteen ACTD candidates were recommended and prioritized by the JROC. Based on funding availability, 13 ACTD programs were subsequently selected to begin. Funding for new FY 2003 ACTDs is approximately \$34 million.

The typical timeline of one-to-four years for the operational demonstration phase of an ACTD is compressed compared to normal acquisition timelines for fielding an operational capability. These shorter schedules are made possible because ACTDs incorporate mature or nearly mature technology and, therefore, forgo time-consuming technology development and technical risk reduction activities. At the end of the ACTD, the user sponsor is able to determine if the capability provided by the ACTD technology has sufficient utility to warrant procurement. If there are significant shortcomings, their options are either to pursue an advanced technology demonstration to improve performance, or not pursue the technology any further at this time. In cases where the operational user is satisfied the prototype has significant utility, the prototype can be retained as an interim capability. The Department then moves quickly to enter the formal acquisition process to acquire needed quantities or, if sufficient, to make fully operational those residual assets already produced as demonstration prototypes.

**B. Program Change Summary**

<b>ACTD (PE: 0603750D8Z)</b>	<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Previous President's Budget	157.762	199.580	202.022	204.561

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Current FY 2004 President's Budget	157.762	200.881	213.361	214.183
Total Adjustments:		-1.301	+11.339	+9.622
Congressional program reductions		-6.999		
Congressional rescissions				
Congressional increases		+8.300		
Reprogrammings				
SBIR/SSTR Transfer				
Other			+11.339	+9.622

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers:** N/A. The majority of funding from this Program Element is forwarded directly to the Services/Defense Agencies who manage all contracting and support requirements.