

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

February 2006

BUDGET ACTIVITY

6 - Management support

PE NUMBER AND TITLE

0605326A - Concepts Experimentation

COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost	20866	38496	21626	21466	22184	22242	19921
308 Concepts Experimentation	9969	16118	0	0	0	0	0
312 Army/Joint Experimentation	8226	19814	18799	20415	21128	21166	19104
33B SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	2671	2564	2827	1051	1056	1076	817

**A. Mission Description and Budget Item Justification:** This program resources the Army Concept Development and Experimentation Campaign Plan (ACDEP), an adaptive approach along two simultaneous, parallel and supporting experimental paths, the concept development path and the prototype path. The first path develops a concepts-based, coherently joint Future Force over time using live, virtual and constructive experimentation to explore, test, and demonstrate concepts and capabilities. These focus on reducing risk to soldiers in the future through actionable recommendations informing Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF) decisions. Prototype path experiments involve operational units, experimental units, and Combat Training Center Operational Forces to inform the future, spiral forward feasible operational needs, and test compelling technology. This program will be executed by Training and Doctrine Command (TRADOC) Futures Center.

This program resources the concept development through experimentation and exercises that are critical to the success of the Unit of Action (UA) Initial Operational Capability (IOC). The UA is the basis of the Future Force modular design and will improve strategic responsiveness of the joint Future Force for full spectrum operations. This is an analytically designed, integrated and synchronized program of small through large scale experimentation using multiple live, virtual and constructive venues to efficiently provide validation and quantifiable data supporting the development of required capabilities across the domains of doctrine, organization, training, materiel, leader development, personnel and facilities (DOTMLPF). The Army will use experimentation as the central focus to refine and mature warfighting concepts, and identify and validate critical decisions related to concept-based required DOTMLPF capabilities (consistent with the Joint Capability Integration and Development System). The Army Chief of Staff designated TRADOC as the executive agent and is the key decision-maker in experiment design and execution.

The resources in this program element supports experimentation functions to include: developmental experiments addressing specific study areas and issues directly supporting concept refinement and development of required capabilities based on Future Force concepts; integrating experiments to ensure the complex family of systems and concepts that comprise the Future Force are fully integrated across proponents, across DOTMLPF domains, and within service/joint contexts; capstone experiments at the end of major Army Transformation Concept Development and Experimentation Plan (AT-CDEP) phases to demonstrate future force capabilities for the joint warfighter; collaborative environments for simulation and experimentation; analysis; program management; Army participation in joint/sister service experimentation and incremental funding for sustaining battle lab experimentation.

The Spiraling program provides a method for Army to keep the Current Force "current" or relevant as adversaries adapt and the operating environment changes. As capability gaps identified by deployed forces reveal shortfalls that impact effectiveness or interoperability, and these capability gaps are prioritized by Army, this program provides the ability for Army to evaluate high priority/high leverage solutions from industry during the current year, with highest priority going to candidates that cover multiple capability gaps. Funding provides the ability to identify and insert leading-edge technology from industry to deployed forces in an incremental manner by leveraging the best ideas of best-positioned Program Manager/Program Executive Officers and pulling, or spiraling, them forward for immediate use in the theater. Spiraling program will ensure that a solution's proposed gain in capability is not offset by a disruption caused by integration problems. Program enables the holistic demonstration, assessment and deployment of critically

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needed capabilities to the current force in an integrated environment in the current year.		

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	FY 2005	FY 2006	FY 2007
<b><u>B. Program Change Summary</u></b>			
Previous President's Budget (FY 2006)	24190	31653	32472
Current BES/President's Budget (FY 2007)	20866	38496	21626
Total Adjustments	-3324	6843	-10846
Congressional Program Reductions		-169	
Congressional Rescissions		-388	
Congressional Increases		7400	
Reprogrammings	-3324		-10147
SBIR/STTR Transfer			
Adjustments to Budget Years			-699

Change Summary Explanation: FY 06 Congressional increases as follows: (1) Automated Language Translator - 2,500; (2) Online Arabic Language Learning Community - 2,400; (3) Biometric ID Device - 1,000; (4) Handwritten Optical Character Recognition Software - 500; (5) WARFIGHTERS Intelligence Community, Linguists and Analysts - 1,000.

Funding - FY 2007: Funds reprogrammed to support higher priority requirements.

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BUDGET ACTIVITY <b>6 - Management support</b>			PE NUMBER AND TITLE <b>0605326A - Concepts Experimentation</b>			PROJECT <b>312</b>	
COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
312 Army/Joint Experimentation	8226	19814	18799	20415	21128	21166	19104
<p><b>A. Mission Description and Budget Item Justification:</b> This project supports full spectrum experimentation to provide the analytically rigorous underpinnings for actionable DOTMLPF recommendations that support key Army decisions. Experiments are conducted to yield the right set of integrated Doctrine, Organization, Training, Materiel, Leadership and Facilities(DOTMLPF) capabilities for both the Current and Future Force. Experiments are executed within a joint context and are conducted using Defense Planning Guidance compliant scenarios, validated environmental, behavioral, and US Army Materiel Systems Analysis Activity data. In accordance with the Army Concept Development and Experimentation Plan (ACDEP), FY 06-10 experimentation focuses on determining the roles and responsibilities of Future Force Tactical and Operational Units of Employment (UEX and UEy) and their ability to command and control a mix of Future Combat System (FCS) Equipped Units of Action and Modular Brigade Combat Teams. The initial focus is at the tactical level to rapidly develop the FCS-equipped Unit of Action (UA) as described in the UA Operational and Organization Plan and FCS Family of Systems Capabilities Developments Document, and to support the spin out of selected FCS capabilities to the modular force. As the experimentation campaign progresses, the focus shifts to the operational and strategic levels to refine the operational Unit of Employment (UEy) concept and a broad range of functional concepts affecting the way we execute doctrine, build organizations and conduct training and leader development such as Battle Command, Maneuver Support, Maneuver Sustainment, Fires and Effects, and Aviation.</p> <p>The Spiraling Program provides Current Force risk mitigation by leading the Army's Training and Doctrine Command (TRADOC) in development/integration of rapid joint, multi-service doctrine, organization, training, leader, material, personnel, and facility (DOTLMPF) solutions for Operation Enduring Freedom/Operation Iraqi Freedom field commander specific requirements. Supports the Army Staff in identifying and managing current and future force related capability gaps and technology shortfalls. Leads TRADOC assessments of rapid deployed force material solutions for continued development, sustainment, or nomination for Army total force application.</p>							
<b><u>Accomplishments/Planned Program</u></b>				<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	
World Class Blue Force Players				3163	0	0	
Unit of Action Sustainment Experiment				151	0	0	
Unit of Employment Network Operations Experiment				650	0	0	
Army Concept Development and Experimentation Plan (ACDEP) Sustainment				484	0	0	
Army Concept Development and Experimentation Plan (ACDEP) Analytical Support				951	0	0	
Omni Fusion Integrating Experiment Build 2				127	0	0	
Omni Fusion Build 3(-) Unit of Action Simulation Exercise (SIMEX)				1300	0	0	
Omni Fusion Build 3(-) Unit of Employment Computer Assisted Map Exercise (CAMEX)				1400	0	0	
Spiraling - Demo/Assess soldier protection indirect fire threat				0	3746	0	
Spiraling - Demo/Assess radar enhancements in support of Counter Rocket, Artillery and Missile (C-RAM)				0	4147	0	

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Spiraling - Demo/assess command and control capabilities for Maneuver Control System (MCS) modifications	0	3546	0
Spiraling - Demo/Assess Forward Area Air Defense Command and Control (FAADC2) integration with Area Defense System	0	3347	0
Spiraling - Demo/Assess Joint Interoperability of emergent Soldier Protection capability	0	0	3000
Spiraling - Demo/Assess emergent remote operating weapons station capability	0	0	2800
Spiraling - Demo/Assess emergent explosives detection capability	0	0	2000
Spiraling - Demo/Assess emergent sensor integration solutions	0	0	2699
Experimentation requirements will be determined at the FY 07 ACDEP conference.	0	0	8300
Multi-Cell and Dismounted Command and Control Experiment	0	830	0
Digital Warfighter Experiment	0	1000	0
Unit of Action Force Maneuver Concept and Development Experiment	0	500	0
Maneuver Enhancement Brigade Experiment	0	251	0
Fires Brigade Experiment	0	450	0
Urban Resolve	0	688	0
Future Combat Systems Program of Record - Stability and Reconstruction Operations Experiment and Battalion Tactics, Techniques and Procedures (TTP) Experiment	0	820	0
Network Operations Experiment	0	489	0
Total	8226	19814	18799

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COST (In Thousands)		FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
33B	SOLDIER-CENTERED ANALYSES FOR THE FUTURE FORCE	2671	2564	2827	1051	1056	1076	817
<b><u>A. Mission Description and Budget Item Justification:</u></b> This project will provide early application of human performance and human figure modeling tools in the development of soldier-focused requirements to shape technology for Army Transformation. Design analyses, constructive simulations and soldier-in-the-loop assessments will ensure that manpower requirements, workload and skill demands are considered, avoid information and physical task overloads, and take optimum advantage of aptitudes, individual and collective training, and numbers of soldiers for an affordable Future Force. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work in this project is performed by the Army Research Laboratory (ARL).								
<b><u>Accomplishments/Planned Program</u></b>						<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>
Provide Human Factors Engineering and Manpower and Personnel Integration (MANPRINT) support to Training and Doctrine Command (TRADOC) Centers, Schools and Battle Laboratories. In FY05, improved and enhanced fidelity of models to predict materiel readiness with direct application to support operation and maintenance manpower estimates for the force modernized equipped Unit of Action (UoA). In FY06, continue to conduct and improve MANPRINT assessment processes. In FY07, continue to influence future force requirements using soldier centered analysis of proposed concepts.						1416	1359	1516
Provide dedicated modeling and analysis cell for early and accurate Manpower and Personnel Integration (MANPRINT) estimates to Army Materiel Command (AMC), AMC Research, Development, and Engineering Command (RDECOM) and its Research, Development, and Engineering Centers (RDECs), TRADOC Centers, Schools and Battle Laboratories, Army Test and Evaluation Command (ATEC) and other service laboratories. In FY05, identified soldier-focused modeling and analysis capabilities and mapped those capabilities to the Future Force needs of PEO Soldier. Conducted and transitioned soldier-system integration (form & fit) analysis to support UoA force and systems design decisions using library of individual soldier clothing and equipment. Identified and transitioned lessons learned from Operation Iraqi Freedom (OIF) Patriot fratricide incidents to influence ongoing Air and Missile Defense requirements and operations. In FY06, continue to improve and transition MANPRINT tools to the user, acquisition and Test & Evaluation communities. Recommend changes to air and missile defense training, personnel, and unit configuration practices and branch assignment policies. In FY07, verify soldier centered analysis impacts in force modernization systems and transition lessons learned to influence future requirement definitions.						1255	1205	1311
Total						2671	2564	2827