

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE					
6 - Management support		0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	5270	6302	5325	5445	4047	3711	3794
S01 INTEGRATION & EVALUATION CENTER (IEC) SUSTAINMENT	760						
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	914	1740	1668	1706	498		
S03 TRAC M&S TOOLS & SERVICES	2469	3054	2111	2158	2049	2062	2111
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	1127	1508	1546	1581	1500	1649	1683

A. Mission Description and Budget Item Justification: Simulation and Modeling for Acquisition, Requirements and Training (SMART) will accomplish the vision of a disciplined, collaborative environment to reduce costs and time required to provide solutions for Army needs. SMART exploits modeling and simulation (M&S) and other information technologies to ensure collaboration and synchronization of effort. SMART applies to the development of tactics and doctrine, experimentation and exercises, traditional weapon system development, and to the assessment and transition of advanced technologies to operational capabilities. The overarching goal of SMART is to reduce the time and cost of providing improved capabilities to our warfighters. Emerging information-age technologies continue to revolutionize our capabilities to collaborate among all stakeholders using data descriptions, digital representations, and virtual prototypes to improve understanding of required capabilities, shorten procurement time, reduce procurement and sustainment costs, and ultimately, reduce total lifecycle cost. SMART advocates the use of advanced technologies in concert with M&S to enable transformation through improved understanding of operational requirements, collaborative analyses of emerging technologies, and cross-domain participation in experiments and exercises. The following projects support Army institutionalization of SMART. There is currently one project under the HQDA Decision Support Tools and Services that support the Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE). The Integrated Performance Cost Model (IPCM) is a DASA-CE project that will identify major impacts on the total cost of ownership and will link cost analysis methodologies with engineering design methodologies and system requirements to allow analysts to develop cost estimates and perform cost - performance trades with the limited amounts of data available early in the program lifecycle. Army Focused Area Collaborative Teams (FACTs) conduct collaborative HQDA directed research to develop solutions for high priority Modeling & Simulation (M&S) objectives impacting current Warfighting capabilities. FACTs improve Army capabilities to leverage M&S to support key decisions on composition and doctrine of the future force and transformation, focusing on non-kinetic aspects of Battle Command. FACTs conduct research to identify key deficiencies of knowledge, algorithms and data in critically vital M&S areas to support current and future Army operations and transformation. FACTs focus on those topical areas that have near-term operational impact or have been historically difficult to model and are vital to decision-making, enhanced Warfighting capabilities, and improved ARFORGEN processes. The Army Simulation Technology (SIMTECH) project enhances Current and Future Force effectiveness by inducing research organizations and agencies on an immediate/short-term basis to conduct high-priority, promising, simulation technology research initiatives that are outside the scope of the Small Business Innovative Research (SBIR) and Army Science and Technology programs. The SIMTECH project focuses simulation technology research initiatives on immediate, short-term Army needs and serves as a catalyst for major technology breakthroughs in SMART, embedded simulation, rapid prototyping, commercial innovation, and related simulation technology.

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<u>B. Program Change Summary</u>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	5380	5342	5360
Current BES/President's Budget (FY 2009)	5270	6302	5325
Total Adjustments	-110	960	-35
Congressional program reductions			
Congressional rescissions			
Congressional increases		960	
Reprogrammings	40		
SBIR/STTR Transfer	-150		
Adjustments to Budget Years			-35

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BUDGET ACTIVITY 6 - Management support		PE NUMBER AND TITLE 0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)					PROJECT S02	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
S02 HQDA DECISION SUPPORT TOOLS & SERVICES	914	1740	1668	1706	498			

A. Mission Description and Budget Item Justification: The HQDA Decision Support Tools and Services project provides decision support tools for the Army Staff and Forward Operating Agencies assigned to the Headquarters, Department of the Army. Currently there is one service being developed. The Integrated Performance Cost Model (IPCM) is an Army decision support tool, sponsored by the Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE), which conducts integrated analyses of system capabilities, performance, technology, acquisition programmatic strategy, and cost estimating. IPCM is a generic integrated analysis framework that enables analysts to optimize performance, cost/funding, and acquisition strategies. The objective for IPCM is to enable the dynamic discovery of requirements, cost effectiveness, engineering, and logistics optimization that seamlessly exchanges information amongst various models and databases. The resulting solution increases the quality of military worth and supportability of fielded war-fighting systems while reducing total ownership cost throughout the entire life cycle. The use of models and simulations early in the life cycle, when capabilities are being evaluated, results in a reduction of time, resources, and risk associated with the acquisition process, and provides for a much larger analysis of trade-space than the current analysis process. The robust analysis that IPCM will provide will significantly improve available information usage, and support faster, more thoroughly understood decision making capabilities for Army leaders to make informed acquisition decisions.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Integrated Performance Cost Model (IPCM) - We updated the IPCM Prototype that included a Federated Intelligent Product Environment (FIPER) infrastructure. Provided software and licenses for FIPER and DB2/WebSphere on the DASA-CE server. Provided stand-alone IPCM/FIPER analysis capability at the Tank-Automotive and Armaments Command (TAACOM). In FY08, DASA-CE will update the component level cost model. Test and validate the component level cost model, populate the database, and update the prototypes provided to TACOM. In FY09, DASA-CE will complete additional cost estimating relationship data collection, model integration and standardization.	914	1692	1668
Small Business Innovative Research/Small Business Technology Transfer Program		48	
Total	914	1740	1668

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COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
S03 TRAC M&S TOOLS & SERVICES	2469	3054	2111	2158	2049	2062	2111

A. Mission Description and Budget Item Justification: This project will support development of modeling and simulation (M&S) tools and services such as software, hardware, and infrastructure for use within the Army's Analysis Community. The primary users for these tools and services are the Training and Doctrine Command Analysis Center (TRAC), the Army Materiel Systems Analysis Activity (AMSAA), and the Center for Army Analysis (CAA). This project will develop descriptions of, and implement technological solutions for, analysis tools to enable emerging technology assessment during concept exploration, and will develop infrastructure and enabling technologies to support Army Transformation. These are the critical efforts for analysis of futures work to justify Army requirements, assess the worth of concepts and alternative approaches to satisfy those requirements, and to develop current and emerging warfighting doctrine from tactical to operational levels of warfare.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Developed a maneuver sustainment force representation in combat models and simulations	514		
Developed knowledge, models, and data for a strongly networked Future Force Command and Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR).	222		
Improved simulation of urban operations (complex environments, physical processes and individual and unit behaviors)	444		
Developed algorithms and data that lead to better representation of the threat, non-combatants, and factions	647		
Developed algorithms and data to better represent joint capabilities and the Army's roles as part of a joint force	99		
Developed algorithms and data that lead to better representation of space capabilities and their contributions to the joint fight	493		
Developed algorithms and data for representing individual soldier behaviors and interactions on the battlefield	50		
FY 08 and 09 funds to be distributed by HQDA (DAMO-BC) based on results of the Army Focused Area Collaborative Teams (FACT) requirements.		3026	2111
Small Business Innovative Research/Small Business Technology Transfer Program		28	
Total	2469	3054	2111

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COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	1127	1508	1546	1581	1500	1649	1683	

A. Mission Description and Budget Item Justification: The Army Simulation Technology (SIMTECH) program enhances Current and Future Force effectiveness by inducing modeling and simulation (M&S) research agencies and organizations to conduct high-priority, promising, simulation technology research initiatives that are outside the scope of the Small Business Innovative Research (SBIR) and the Army Science and Technology programs. The SIMTECH program provides a source of competitive funds to Army research organizations and agencies to stimulate high quality, innovative M&S research with significant opportunity for payoff in Army warfighting capability. The SIMTECH program focuses the simulation technology research initiatives on immediate short-term Army capability requirements by including a theme in the annual call for proposals. The SIMTECH program serves as a catalyst for major SMART related technology breakthroughs in embedded simulation, collaboration, rapid prototyping, commercial innovation, and related simulation technology. Successful SIMTECH projects are typically transitioned to start-up projects and existing Army simulation programs. The work in this program is performed by the Army Materiel Command, the Army Corps of Engineers Engineer Research and Development Center, the Army Research Institute, the Army Training and Doctrine Command Analysis Center, PEO-STRI, and other Army agencies.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY07 - Completed study of Airborne Command and Control and common operating picture capabilities. This led to significant improvements in understanding the effects of Unmanned Aerial Vehicles (UAV) operating in the C4ISR network.	1127		
The SIMTECH Council of Colonels determined that the FY08 task focus is on Airspace Management.		1465	
The SIMTECH Council of Colonels determined that the FY09 task focus is on Battle Command sustainment capabilities.			1546
Small Business Innovative Research/Small Business Technology Transfer Program		43	
Total	1127	1508	1546