ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**

	COST (In Thousands)	FY 2004 Actual	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	3276	1853	9437	8592	6923	7108	8335	8233
S01	INTEGRATION AND EVALUATION CENTER (IEC) SUSTAINMEN	3276	1853	1001	1024	0	0	0	0
S02	HQDA DECISION SUPPORT TOOLS & SERVICES	0	0	2520	2403	1394	1812	2010	2229
S03	TRAC M&S TOOLS & SERVICES	0	0	4413	3617	3283	2936	4012	4198
S05	SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	0	0	1503	1548	2246	2360	2313	1806

A. Mission Description and Budget Item Justification: Simulation and Modeling for Acquisition, Requirements and Training (SMART) is a concept to accomplish the vision of a disciplined, collaborative environment to reduce costs and time of providing solutions for Army needs. SMART is a change in Army business practices that exploits modeling and simulation (M&S) and other information age technologies to ensure collaboration and synchronization of effort. SMART applies to 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 are revolutionizing 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. The Joint Precision Strike Demonstration Integration and Evaluation Center (JPSD IEC) supports SMART through ongoing Advanced Concepts Technology Demonstrations (ACTD) and by maintaining a current suite of M&S programs. The JPSD IEC virtual environment enables the Army to test and evaluate concepts and technologies before making costly technology commitments. The JPSD IEC provides the ability to conduct distributed exercises and experiments in any combination of real tactical and operational systems with constructive and virtual simulations/simulators and state-of-the-art high fidelity models. There are two major projects under the HQDA Decision Support Tools and Services Project that support the Deputy Assistant Secretary for Cost and Economics (DASA-CE) and the Center for Army Analysis (CAA). 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. CAA assesses Army capabilities in a Joint Interagency Multinational (JIM) context and conducts the Total Army Analysis (TAA) – the foundation for Army resources. CAA provides analytical assistance for defining and justifying Army requirements in a JIM context and provides additional assistance in support of SMART. This project supports the Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team

(FACT), established by CAA to improve the M&S capability of representing Army capabilities at the campaign-level. The TRADOC Analysis Center (TRAC) is an Army analysis agency that conducts research on potential military operations worldwide to inform leaders and support decisions on the most challenging issues facing the Army and the Department of Defense (DoD). This project provides TRAC with the resources to ensure the Army can develop and maintain a current, efficient M&S infrastructure to rapidly respond to the Army leadership on Joint warfighting experiments, analyses of courses of action, and doctrine development. The Army's 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.

B. Program Change Summary	FY 2□□5	FY 2□□6	FY 2□□7
Previous President's Budget (FY 2□□5)	1935	1964	2123
Current Budget (FY 2□□6/2□□7 PB)	1853	9437	8592
Total Adjustments	-82	7473	6469
Net of Program/Database Changes			
Congressional program reductions	-28		
Congressional rescissions			
Congressional increases			
Reprogrammings			
SBIR/STTR Transfer	-54		
Adjustments to Budget Years		7473	6469

Change Summary Explanation: Funding - FY 2□□6 & FY 2□□7 - funds realigned to support the Tools and Services programs and the Simulation Technology Program (FY □6 +7473/FY □7 +63□2)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S01**

COST (In Thousands)	FY 2□4 Actual	FY 2□5 Estimate	FY 2□6 Estimate	FY 2□7 Estimate	FY 2□8 Estimate	FY 2□9 Estimate	FY 2□1□ Estimate	FY 2□11 Estimate
S□1 INTEGRATION AND EVALUATION CENTER □IEC) SUSTAINMEN	3276	1853	1001	1024	0	0	0	0

A. Mission Description and Budget Item Justification: The Simulation and Modeling for Acquisition, Requirements and Training (SMART) Program will develop essential operational tools and software applications to support ongoing Advanced Concepts Technology Demonstrations (ACTDs) and maintain the current suite of modeling/simulation programs resident in the Joint Precision Strike Demonstration's (JPSD) Integration and Evaluation Center (IEC). The JPSD's mission is to integrate innovative futuristic operational concepts, and tactics, techniques, and procedures (TTPs) with emerging technologies to significantly improve OSD/Army/Combatant Commanders capabilities. The IEC provides the environment that enables the development of SMART tools. This architecture, operational tools and software applications are essential to support ongoing ACTDs and Joint exercises/experiments. The IEC provides critical support in: (1) developing, testing and evaluating Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) operational concepts, TTPs, enabling technologies and systems; (2) developing and evaluating Joint/Services sensor-to-shooter and precision engagement C4ISR architectures; (3) providing a robust/current modeling and simulation environment to support Joint Forces Command's (JFCOM) joint experimental programs and the Army's critical SMART Program and Simulation Based Acquisition (SBA) activities (4) development of visualization tools and applications to significantly enhance the Combatant Commander's and/or JTF Commander's situational awareness of their battle space. The IEC is a critical enabling capability in building and testing software applications for JPSD's current ACTDs. The IEC's virtual environment allows the Army/OSD to test and evaluate concepts and technologies before making costly technology commitments. The IEC has the capability (modeling, simulation and communications) to conduct distributed exercises and experiments in any combination of real tactical and operational systems with constructive and virtual simulations/simulators and state-of-the-art high fidelity models. The IEC and its capabilities are consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. The IEC, located within the Army's Topographic Engineering Center (TEC), has been built and maintained by the Director, Joint Precision Strike Demonstration Project Office (JPSD-PO) at Fort Belvoir, Virginia. JPSD-PO is an OSD/Army chartered program under the Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO-IEW&S), Fort Monmouth, NJ.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
IEC Sustainment - Funds provide enhanced Joint user/developer testbed for rapid prototyping of new systems in C4I and weapon□s) evaluations. Support modeling and simulation synthetic operational environment for two advanced concept technology demonstrations: Theatre Effects Battlefield Operations □TEBO) and Joint Intelligence Surveillance and Reconnaissance □JISR), an Army Science and Technology Objective, Modeling Architecture Research and Experimentation □MATREX) and two SMART/SBA acquisition programs: Future Combat System and Aerial Common Sensor. Support planned transition of Automated Deep Operations Coordination System □ADOCS)in training and simulation support for exercises. Provide stimulus in support of training for the JISR ACTD and web-based development. Provide secure communications via secret internet protocol router network □SIPRNET) to enable ACTDs to transmit software upgrades and patches in support of tests, evaluations and joint exercises. Provide a geographically distributed network to support joint warfare exercises and experiments. Provide continuous reach back warfighter support for ADOCS and JISR during Operation Iraqi Freedom □OIF)and Operation Enduring Freedom □OEF).	2555	1853	1001	1024
Small Business Innovative Research/Small Business Technology Transfer Programs	74	0	0	0
Unknown	647	0	0	0
Totals	3276	1853	1001	1024

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S02**

COST (In Thousands)		FY 2□□4 Actual	FY 2□□5 Estimate	FY 2□□6 Estimate	FY 2□□7 Estimate	FY 2□□8 Estimate	FY 2□□9 Estimate	FY 2□1□ Estimate	FY 2□11 Estimate
S□2	HQDA DECISION SUPPORT TOOLS & SERVICES	0	0	2520	2403	1394	1812	2010	2229

A. Mission Description and Budget Item Justification: The HQDA Decision Support Tools and Services project provides decision support tools for the Deputy Assistant Secretary for Cost and Economics (DASA-CE) and the Center for Army Analysis (CAA). The Integrated Performance Cost Model (IPCM) is a DASA-CE project that will provide rapid Cost As an Independent Variable (CAIV) analyses for systems performance and design trade-offs early in the stages of weapons systems development. IPCM will help to 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 despite having only limited data available early in the program lifecycle. Distributed data processing is the mode of operation and existing cost models will be linked to IPCM. Both system and component levels of IPCM will be integrated to provide seamless operation and will be available Army-wide. CAA has the responsibility to assess Army capabilities in a Joint Interagency Multinational (JIM) context and to conduct the Total Army Analysis (TAA). CAA provides analytical assistance for defining and justifying Army requirements in a JIM context and provides additional assistance in support of the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) initiative. CAA has primary responsibility for representing Army capabilities in campaign-level simulations with respect to strategic direction, concept development, and force planning. Funds provide advanced simulation technology for the next generation of campaign-level simulation systems of the future force. Funds provide for the Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team (FACT) established by the Center for Army Analysis (CAA). The JCCA FACT will improve the M&S capability of representing Army capabilities at the campaign-level to include the representation of arrival schedule; maneuver; rates of advance; theater air and missile defense; casualties of personnel; attrition of equipment (to include combat damage, breakdowns, repairs and returns); ammunition expenditures by munitions type; and supply consumption and shortages (theater-level), for the Army current through future force, other Services, forces of coalition partners, and threat forces, across the Range of Military Operations (ROMO). Improvements to this M&S capability will assist the Army in more accurately determining the quantity of each type US Army unit required for each contingency (contingency types include combat operations, low-intensity conflict, homeland security, and operations other than war); forecasting the likelihood and frequency of conflict/contingency types by region of the world; estimating the timing of arrivals of US forces, equipment, and supplies at overseas locations; and examining options for manning/rotation of Army units overseas. An additional task of focus in this area includes improving Chemical, Biological, Radiological, and Nuclear (CBRN) effects simulation at the theater-level.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S02**

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
In FY06 complete the second phase of Joint Integrated Contingency Model (JICM)/Joint Warfare System (JWARS) Interoperability. In FY07, continue Future Force Modeling in JICM and develop Mission Task Organized Forces Decision Support System (MTOF DSS) to provide an initial estimate for forces necessary in the range of Lesser Contingency (LC) operations.	0	0	923	796
In FY06, complete development of the weapon system cost model, field to various sites, and train personnel on its use. Develop component level cost data and classified data capability. In FY07, complete the component level cost model. Test and validate the component level cost model and populate the database.	0	0	1597	1607
Totals	0	0	2520	2403

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

PROJECT
S02

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Joint Campaign/Contingency Analysis JCCA) Focus Area Collaborative Team FACT)	Various		0	0		923	2Q	796	1-4Q	Continue	Continue	0
b . Integrated Performance Cost Model IPCM)	Various		0	0		1597	2Q	1607	2Q	Continue	Continue	0
Subtotal:			0	0		2520		2403		Continue	Continue	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R3)

February 2005

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)

PROJECT
S02

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			0	0		2520		2403		Continue	Continue	0

Schedule Detail (R4a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S02**

Schedule Detail	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Joint Campaign/Contingency Analysis (JCCA) Focus Area Collaborative Team (FACT)			2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Integrated Perfomance Cost Model (IPCM)			2-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S03**

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
S03 TRAC M&S TOOLS & SERVICES	0	0	4413	3617	3283	2936	4012	4198

A. Mission Description and Budget Item Justification: This project will support development of modeling and simulation (M&S) software, hardware, and infrastructure for general use by the Army's Training and Doctrine Command Analysis Center (TRAC). 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.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Develop Advanced Warfighting Simulation (AWARS) and COMBAT XXI hybrid and functional capabilities/federations w/other models and simulations.	0	0	971	780
Advance maneuver sustainment force representation in combat models and simulations	0	0	397	319
Develop knowledge, models, and data for a strongly networked Future Force – (1) Command and Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) , Information Fusion, and network-enabled effects delivery	0	0	794	638
Develop knowledge, models, and data for a strongly networked Future Force – Technology opportunities for system survivability, reliability, mobility.	0	0	1103	957
Advanced representation of unmanned systems in the Future Force	0	0	177	142
Advanced simulation of urban operations (complex environments, physical processes and individual and unit behaviors)	0	0	883	709
Develop knowledge, models, and data for future Battle Command	0	0	88	72
Totals	0	0	4413	3617

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605718A - Simulation & Modeling for Acq, Rqts, & Tng (SMART)**	**S05**

COST (In Thousands)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
S05 SIMULATION TECHNOLOGY (SIMTECH) PROGRAM	0	0	1503	1548	2246	2360	2313	1806

A. Mission Description and Budget Item Justification: The goal of the Army's Simulation Technology (SIMTECH) program is to enhance Current and Future Force effectiveness by providing the ability for the Army to induce 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 the Army's Science and Technology programs. The SIMTECH program provides a source of competitive funds to Army research organizations and agencies to stimulate high quality, innovative research with significant opportunity for payoff in Army warfighting capability. The SIMTECH program focuses the simulation technology research initiatives on an immediate short-term Army need 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, and other Army agencies.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Specific FY06 and FY07 requirements to be determined at the FY06 and FY07 SIMTECH Council of Colonels scheduled for the summer preceding each fiscal year.	0	0	1503	1548
Totals	0	0	1503	1548