ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - OPERATIONAL SYSTEMS DEV	0203758A - Digitization	374

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
374 HOR BATTLEFLD DIGITIZN	32235	30384	29302	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

Horizontal Battlefield Digitization is a strategy that allows warfighters, from the individual soldier and platform to echelons above corps, to share critical situational awareness (SA) and command and control information. It applies digital information technologies to acquire, exchange, and employ data throughout the battlespace, providing a clear and accurate common relevant picture for leaders at all levels. This timely sharing of information significantly improves the ability of commanders and leaders to quickly make decisions, synchronize forces and fires, and increase the operational tempo. Digitization is a means of realizing a fully integrated command and control capability to the platoon level, including interoperability links with joint and multinational forces. The major FY02/03 efforts included in the program element are: 1) The horizontal battlefield integration office (Directorate of Integration), formerly Army Digitization Office, responsible for the integration and synchronization of the Army's digitization efforts; coordination of digitization efforts between joint and multi-national forces; and the synchronization of combat material and training efforts to develop and deploy Army XXI information technologies. 2) Systems engineering and integration of physical interfaces and logical mechanisms between and across multiple battlefield operating systems and across multiple Program Executive Offices, providing improved capability to operate in the common battlefield picture/SA and common operating environment (COE) dimensions. Enhances synchronization of maneuver, direct/indirect fires, intelligence and targeting, and reduces fratricide. 3) Unit Set Fielding (USF) outlines the responsibilities, prerequisites, and requirements necessary to operationally release, field, and incorporate materiel systems as part of the whole C4ISR system of systems architecture associated with the critical mission threads the Army requires to support Strategic National Tasks. USF serves as the synchronizing process ensuring that system fieldings are implemented in an integrated and complimentary fashion, supporting a unit's modernization with minimum disruption to unit readiness. USF will apply to all Active and Reserve Component unit modernization. Horizontal Battlefield Digitization will continue to integrate modern information technology throughout the Army well into the 21st Century.

FY 2000 Accomplishments

- 5011 Evaluated data engineering and analysis testing, experimentation and interrelated simulation of hardware/software
- 4150 Supported System/Platform Integration of heavy/light forces; synchronization and integration of fielding plans, assessments, and resources; battlefield digitization impact studies, and system of systems issue resolutions
- 1723 Continued analysis (including modeling/simulation) to predict overall system of systems performance.

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FY 2000 Accomplishments (Continued)

- 2955   Supported thorough validation of digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout.

- 3637   Supported Integration planning tools, specifications, and other training, logistics, interface, and configuration management products for the 66 TRADOC identified systems.

- 6289   Evaluated emerging interfaces to ensure interoperability across all functional areas including; improved locating, tracking, and management of transportation assets; supported tactical internet and electronic interfaces required for logistic functions; solution development for Aviation communications requirements for full tactical internet connectivity/mobility, and supported system integration of interoperability analysis, design, and demonstration of capabilities to minimize platform modifications to achieve maximum benefits of open architecture.

- 2375   Applied university academic and research resources to Army modeling, simulation and training to support the Army digitization strategy.

- 3040   Supported Joint and Coalition interoperability programs for improving digitization including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts; specific tasks to include: database development, operational system architecture, and Multilateral Interoperability Program (MIP) Phase I testing and the International Remote Command Post Exercise (CPX).

- 3055   Supported Bradley systems improvements and Land Warrior integration with Command, Control, Communications, Computers, and Intelligence (C4I) systems.

Total 32235

FY 2001 Planned Program

- 5015   Data engineering evaluation and analysis testing, experimentation and interrelated simulation of hardware/software.

- 3843   System/Platform Integration of heavy/light forces, synchronization assessments, battlefield digitization impact studies and system of systems issue resolution.

- 1916   Analysis (including modeling/simulation) to predict overall system of systems performance.

- 3437   Thorough validation of digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout.

- 4689   Integration tools, plans, specifications, and other training, logistics, interface, and configuration management products for the 66 TRADOC identified systems. (e.g. BFIST, Linebacker, BCIS, Aviation Platforms, Ground Combat Platforms, Integ TES into ASAS and AFATDs)

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FY 2001 Planned Program (Continued)

- 5120   Evaluate emerging interfaces to ensure interoperability across all functional areas including: support tactical internet and electronic interfaces required for additional logistic functions; additional solution development for Aviation communications requirements for full tactical internet connectivity/mobility; and support system integration of interoperability analysis, design, and demonstration of capabilities to minimize platform modifications to achieve maximum benefits of open architecture.

- 1999   Apply university academic and research resources to the integration of Army modeling, simulation and training to support modernized forces.

- 3500   Joint and Coalition interoperability programs for improving operational integration including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database development, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP) in accordance with JV 2010.

- 865   SBIR/STTR

Total 30384

FY 2002 Planned Program

- 4552   Conduct technical interoperability studies, perform interoperability/integration analyses, analyze networked weapon system and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems compatibility, and assess technical and operational test plans, activities, and results.

- 1608   Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.

- 1518   Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization, database management, and Army Order of Precedents.

- 1325   Provide thorough validation of evolving digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout in support of the Transformation Campaign Plan.

- 1019   Develop C4I systems software baselines and manage Horizontal Technology Integration efforts. Provide assessments for risk, interoperability, performance, and scheduling. Perform System Integration functions for baselining, and process improvements.

- 4286   Synchronize system/platform integration, through the use of common components, across ground and aviation programs.

- 3929   Apply emerging horizontal integrated information technologies, capitalizing on the synergism achieved through system of system fieldings across functional areas.

- 3475   Integrate and synchronize modeling and simulation interoperability with C4ISR programs in support of testing and training of system of systems developments.

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FY 2002 Planned Program (Continued)

- 1430   Provide strategic planning to the Army Experimentation Campaign Program (AECP). Design and manage Unit Set configuration and execution. Perform management and oversight of the 3 views of architecture (system, operational, and technical).

- 1630   Identify Embedded Training Design Support tasks and methodologies, research, and development in the use of simulation.

- 1030   Apply university academic and research resources to the integration of Army modeling, simulation, and training to support modernized forces including University XXI oversight.

- 3500   Joint and Coalition interoperability programs for improving operational integration including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database development, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP) in accordance with JV 2010.

Total 29302

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	29941	29671	29202	0
Appropriated Value	30180	30671	0	0
Adjustments to Appropriated Value	0	0	0	0
a. Congressional General Reductions	0	-215	0	0
b. SBIR / STTR	-761	0	0	0
c. Omnibus or Other Above Threshold Reductions	-117	0	0	0
d. Below Threshold Reprogramming	3055	0	0	0
e. Rescissions	-122	-72	0	0
Adjustments to Budget Years Since FY2001 PB	0	0	100	0
Current Budget Submit (FY 2002/2003 PB)	32235	30384	29302	0

FY 2001: Congressional increase of (+860) for continued Digitization effort at Ft. Hood, Texas
FY 2002-FY 2003: Funds increased in the President's Budget for systems integration/interoperability.

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C. Other Program Funding Summary: Not Applicable

D. Acquisition Strategy: To validate/demonstrate concepts and requirements, near term efforts were focused on developing a seamless battlefield software architecture and digitized appliqué hardware systems to include: evaluation of the horizontal battlefield digitization resources for systems, acquisition, integration, and testing of digital capability across multiple command and control, communications, sensors, and weapons platforms. The result will be an integrated digital capability designed to meet the near-term requirements of the First Digitized Division, Second Digitized Division by 2003, First Digitized Corps by the end of 2004, and the Army Transformation Force. Also supports the Army's role in joint and multi-national digitization programs; coordinates/manages security, vulnerability and "Red Teaming" functions; and manages Manpower and Personnel Integration (MANPRINT) modeling, simulations, and analysis.

E. Schedule Profile	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Interoperability Certification			1Q	0	0	0	0	0
Develop ATCCIS International Standards	1-4Q	1-4Q	1Q	0	0	0	0	0
ATCCIS International Test	1Q			0	0	0	0	0
Develop MIP International Standards	1-4Q			0	0	0	0	0
MIP Phase I Testing (ATCCIS/MIP Stds)	1-4Q	1-3Q		0	0	0	0	0
MIP Phase I Demo		4Q		0	0	0	0	0
MIP Phase I Fielding Decision			1Q	0	0	0	0	0
MIP Phase II Initial Testing		4Q		0	0	0	0	0
MIP Phase II Testing (remote & in Germany)	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Participate in Coalition Exercise (Canada)			3Q	0	0	0	0	0
MIP Phase II Demo & US Fielding Decision			4Q	0	0	0	0	0
MIP Phase II Tests, Integration & Refinement				0	0	0	0	0
Participate in MDIE Coalition Exercise				0	0	0	0	0
Final MIP Solution Demo & Fielding Decision				0	0	0	0	0
EBC Port and Mass storage device upgrades		3Q	1Q	0	0	0	0	0
EBC PowerPC chip Test & Evaluation		1Q	1Q	0	0	0	0	0
FBCB2 Initial Operation Test & Evaluation		1Q	1Q	0	0	0	0	0
FBCB2 Initial Operational Capability		1Q		0	0	0	0	0

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E. Schedule Profile (continued)	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
FBCB2/EBC Follow-on Tests		3Q	1Q	0	0	0	0	0
FDD Hardware contract award	2Q			0	0	0	0	0
Equip First Digitized Division	1-4Q	1Q		0	0	0	0	0
Evaluate electronic interface to tactical Internet and to C2 systems.	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Conduct analysis to support system design, experimentation and implementation	2-3Q	1-4Q	1-4Q	0	0	0	0	0
Light Force Digitization			1-4Q	0	0	0	0	0
Equip First Digitized Corps	1-4Q	1-4Q	1-4Q	0	0	0	0	0
Equip Second Digitized Division		1-4Q	1-4Q	0	0	0	0	0

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Exhibit R-2
Budget Item Justification

| ARMY RDT&E COST ANALYSIS(R-3) | | | | | | | | | | | June 2001 | |

| BUDGET ACTIVITY 7 - OPERATIONAL SYSTEMS DEV | | | PE NUMBER AND TITLE 0203758A - Digitization | | | | | | | | PROJECT 374 | |

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Integration	MIPR/PWD	Various	27045	15105	1Q	15981	1Q	0	0	0	0	0
b . International Digitization	MIPR/PWD	Various	5347	3500	1Q	3500	1Q	0	0	0	0	0
c . Technical Analysis	MIPR/PWD	MITRE, Pentagon, McLean, VA	1748	987	1Q	798	1Q	0	0	0	0	0
d . Other Government Agencies	MIPR/PWD	Various	3263	1338	1Q	985	1Q	0	0	0	0	0
Subtotal:			37403	20930		21264		0		0	0	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Directorate of Integration Office Operations		Pentagon	3161	1220		1180		0	0	0	0	0
b . Digitization Planning, Internet and graphics support	PWD	Signal Corp. Pentagon and Arlington, VA	2737	1277	1Q	1285	1Q	0	0	0	0	0

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Exhibit R-3
Cost Analysis

ARMY RDT&E COST ANALYSIS(R-3)

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II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
c . Info Ops, System Eng. Integration & Ops Spt.	PWD	Quantum Res International Pentagon, Ft. Monroe, VA & Ft. Hood, TX	4972	2804	1Q	3470	1Q	0	0	0	0	0
d . Other Integration Support	MIPR/PWD	CRC/UHD/ATC/MPRI, Pentagon and Arlington, VA	993	460	1Q	470	1Q	0	0	0	0	0
e . SBIR/STTR			0	865		0		0	0	0	0	0
Subtotal:			11863	6626		6405			0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Govt. Agencies	MIPR/PWD	Various	4156	558	1Q	221	1Q	0	0	0	0	0
b . University XXI Initiatives	MIPR/PWD	Univ. of Texas and Texas A&M	4232	1755	1Q	1030	1Q	0	0	0	0	0
c . Studies/Analyses/DB2	MIPR/PWD	Pentagon, Arlington, VA	1079	515	1Q	382	1Q	0	0	0	0	0
Subtotal:			9467	2828		1633		0		0	0	0

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Cost Analysis

ARMY RDT&E COST ANALYSIS(R-3)												June 2001
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

Remarks: Not Applicable

Project Total Cost:			58733	30384		29302		0		0	0	0

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Cost Analysis