

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

February 2002

BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0203758A - Digitization				PROJECT 374	
COST (In Thousands)	FY 2001 Actual	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	30820	32027	28968	32465	33405	29939	30765	Continuing	Continuing

A. Mission Description and Budget Item Justification: 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 multi-national forces. The major efforts included in the program element are: 1) 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; 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). Enhance synchronization of maneuvers, direct/indirect fires, intelligence and targeting, and reduce fratricide. 3) Unit Set Fielding (USF). 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 fieldings are implemented in an integrated and complimentary fashion and support a unit's modernization with minimum disruption to unit readiness. USF will apply to all Active and Reserve Component unit modernization. Horizontal Battlefield Digitization supports the Legacy to Objective transition path of the Army Transformation Plan

FY 2001 Accomplishments:

- 5215 Continued data engineering evaluation and analysis testing, experimentation and interrelated simulation of hardware/software.
- 4908 Continued System/Platform Integration of heavy/light forces, synchronization assessments, battlefield digitization impact studies and system of systems issue resolution.
- 1953 Performed analysis (including modeling/simulation) to predict overall system of systems performance.
- 3738 Conducted thorough validation of digital requirements/architecture to ensure realistic/adequate data flows, mission thread analysis, interoperability, human resource engineering, security, and physical layout.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development**0203758A - Digitization****374****FY 2001 Accomplishments: (Continued)**

- 4729 Developed integration tools, plans, specifications, and other training, logistics, interface, and configuration management products for the 66 TRADOC identified systems. (e.g. BFIST, Linebacker, Aviation Platforms, Ground Combat Platforms, Integ TES into ASAS and AFATDs).
- 5175 Evaluated emerging interfaces to ensure interoperability across all functional areas. Supported tactical internet and electronic interfaces required for additional logistic functions and Aviation communication requirements of full tactical internet connectivity/mobility. Supported system integration, interoperability analysis, design, and capability demonstrations to minimize platform modifications and achieve the maximum benefits of open architecture.
- 1755 Applied university academic and research resources to the integration of Army modeling, simulation and training to support modernized forces.
- 3347 Supported Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database developments, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP).

Total 30820

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) system 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 and database management in support of the Transformation Campaign Plan (TCP) priorities.
- 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 TCP.
- 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.

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

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0203758A - Digitization

374

FY 2002 Planned Program (Continued)

- 1430 Provide strategic planning to the Army Experimentation Campaign Program (AECPP). 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, methodologies, research, and development in the use of simulation.
- 2755 Apply university academic and research resources to the integration of Army modeling, simulation, and training in support of modernized forces.
- 3500 Support Joint and Coalition interoperability programs to improve operational integration in accordance with JV 2010, including C4I Coalition Warfare, Command and Control System Interoperability Program (C2SIP) efforts, interoperability database developments, operational system architectures, the Simulation of C2 Information Systems Connectivity Experiments (SINCE) and the Multilateral Interoperability Program (MIP).
- 1000 Support Digital Intelligence Situation Mapboard (DISM) Battalion Test

Total 32027

FY 2003 Planned Program

- 4688 Conduct technical interoperability studies, perform interoperability/integration analyses, analyze networked weapon system and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system compatibility, and assess technical and operational test plans, activities, and results.
- 1689 Provide technical, analytical, and management support for implementation of information operations on the digitized battlefield.
- 1597 Coordinate, integrate, and synchronize all aspects of material system fieldings to include tracking, recording, and resolving issues for system of systems synchronization and database management, the TCP priorities.
- 1505 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.
- 5174 Migrate full Joint interoperability and integration standards, including the robust near real time network integration of Aviation systems with Ground systems, and robust networked and databased integration of Weapon systems with Command & Control (C2) systems. Provide synergistic operational capabilities to the force.
- 2885 Manage integration of Analysis, Modeling, and Design (AMD), including software development systems, through database integration, with other systems. Support the increased integration of training and test systems with the tactical (C4ISR) systems.
- 2659 Improve network management across all fielded digitized systems to support increased activity.
- 4210 Integrate and synchronize interoperability across C4ISR programs in support of testing, training, and fielding system of systems developments to the force. Provide efforts in architecture to strengthen and leverage S&T advanced capabilities, like flexibility and extensibility.

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

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

FY 2003 Planned Program (Continued)

- 1061 Continue to apply university academic and research resources to the integration of Army modeling, simulation and training in support of modernized forces.
- 3500 Joint and Coalition interoperability programs for improving digitization, include the Multinational Interoperability Program (MIP) efforts. Specific tasks include continued refinement, integration, and test of the database replication mechanism and refinement of Coalition Tactics, Techniques, and Procedures (TTPs).

Total 28968

<u>B. Program Change Summary</u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	30384	29302	28662
Appropriated Value	30671	32302	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-275	0
b. SBIR / STTR	-865	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	1296	0	0
e. Rescissions	-282	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	306
Current Budget Submit (FY 2003 PB)	30820	32027	28968

FY 2001: Congressional increase (+1000) for continued Digitization effort at Ft. Hood, Texas.

FY 2002: Congressional increase (+2000) for continued Digitization effort at Ft. Hood, Texas and (+1000) for Digital Intelligence Situation Mapboard (DISM) Battalion Testing.

FY 2003: Funds increased for systems integration/interoperability.

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

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

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, and First Digitized Corps by the end of 2006, 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.

<u>E. Schedule Profile</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Interoperability Certification		1Q					
Develop ATCCIS International Standards	1-4Q	1Q					
Develop MIP International Standards		1-4Q					
MIP Phase I Testing (ATCCIS/MIP Stds)	1-3Q						
MIP Phase I Demo		1Q					
MIP Phase I Fielding Decision		2Q					
MIP Phase II Initial Testing		1Q					
MIP Phase II & MDIE Testing (remote & in Germany)	1-4Q						
Participate in Coalition Exercise (Canada)		3Q					
MIP Phase II Demo & US Fielding Decision		4Q					
MIP Phase II Tests, Integration & Refinement			1-4Q	1-4Q	1-4Q		
Participate in MDIE Coalition Exercise				4Q		4Q	
Final MIP Solution Demo & Fielding Decision					4Q		
Embedded Battle Command (EBC) Port and Mass storage device upgrades	3Q	1Q	1Q	1Q	1Q		

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

February 2002

BUDGET ACTIVITY 7 - Operational system development	PE NUMBER AND TITLE 0203758A - Digitization	PROJECT 374
--	---	-----------------------

<u>E. Schedule Profile (continued)</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
EBC PowerPC chip Test & Evaluation	1Q	1Q					
FBCB2 Initial Operation Test & Evaluation			1Q				
FBCB2 Initial Operational Capability				1Q			
Evaluate electronic interface to tactical Internet and to C2 systems.	1-4Q	1-4Q	1-4Q	1-4Q			
Conduct analysis to support system design, experimentation and implementation	1-4Q						
Light Force Digitization		1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Equip First Digitized Corps	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	
Equip Second Digitized Division	1-4Q	1-4Q	1-4Q				
Digital Intelligence Situation Mapboard Battalion test		2-4Q					

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
7 - Operational system development

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	15609	2-4Q	15639	1Q	15000	1Q	Continue	Continue	Continue
b . International Digitization	MIPR/PWD	Various	5654	3347	2-3Q	3500	1Q	3500	1Q	Continue	Continue	Continue
c . Technical Analysis	MIPR	MITRE, McLean, VA	1748	1140	1Q	1140	1Q	1200	1Q	Continue	Continue	Continue
d . Other Government Agencies	MIPR	Various	3263	1774	1Q	985	1Q	500	1Q	Continue	Continue	Continue
Subtotal:			37710	21870		21264		20200		Continue	Continue	Continue

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	In House	Pentagon, Arlington, VA	3431	1581	1-4Q	1180	1-4Q	1400	1-4Q	Continue	Continue	Continue
b . Digitization Planning, Internet and graphics support	MIPR	Signal Corp. Pentagon, Arlington, VA	2737	1277	1Q	1285	1Q	1700	1Q	Continue	Continue	Continue
c . Info Ops, System Eng. Integration & Ops Spt.	PWD	Quantum Res International, Arlington, VA, Ft. Monroe, VA & Ft. Hood, TX	4752	2804	1Q	3470	1Q	4100	1Q	Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

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
d . Other Integration Support	MIPR	CRC/UHD/ATC/MPRI, Arlington, VA	993	460	1Q	470	1Q	180	1Q	Continue	Continue	Continue
Subtotal:			11913	6122		6405		7380		Continue	Continue	Continue

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	Various	4156	558	1Q	221	1Q	127	1Q	Continue	Continue	Continue
b . University XXI Initiatives	PWD	Univ. of Texas and Texas A&M	4182	1755	1Q	2755	1Q	1061	1Q	Continue	Continue	Continue
c . Studies/Analyses	MIPR	Pentagon, Arlington, VA	1079	515	1Q	382	1Q	200	1Q	Continue	Continue	Continue
d . DISM Battalion Test	MIPR/PWD		0	0	2-3Q	1000		0		0	1000	0
Subtotal:			9417	2828		4358		1388		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203758A - Digitization

PROJECT
374

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
			0	0		0		0		0	0	0
Subtotal:												

Remarks: Not Applicable

Project Total Cost:			59040	30820		32027		28968		Continue	Continue	Continue
---------------------	--	--	-------	-------	--	-------	--	-------	--	----------	----------	----------