

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide, Joint Staff/BA 7					R-1 ITEM NOMENCLATURE C4I for the Warrior 0303149J					
COST (\$ in Millions)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005		Cost to Complete	Total Cost
Total PE Cost	2.798	2.982	5.486	5.935	6.469	6.645	6.835		TBD	TBD
Advanced Concepts	2.636	2.779	5.285	5.757	6.284	6.465	6.661		TBD	TBD
Joint Warrior Interoperability Demonstrations (JWID)	.162	.203	.201	.178	.185	.180	.174		TBD	TBD

A. Mission Description and Budget Item Justification

The C4I for the Warrior (C4IFTW) concept, Network-centric operations along with the implementation of the Global Information Grid are key concepts for promoting joint coalition C4 interoperability worldwide. This program provides focus and visibility into resolving C4 interoperability issues and provides organizing principles, policy, and doctrine for information superiority as directed by JV2010. C4IFTW stresses interoperability and leverages the rapid pace of C4 technology advancements. This program is based on two subprograms: Advanced Concepts and Joint Warrior Interoperability Demonstrations (JWID). As the C4IFTW concepts evolve and mature, they will spawn new approaches to providing the joint warfighter with a fused near-real-time, true representation of the battlespace. Its goal is to bring the warrior an accurate and complete picture of the battlespace, timely and detailed mission objectives, and the clearest view of targets. The Advanced Concepts initiative is intended to leverage commercial technologies and government-funded developments to provide high priority technologies to the warfighter in the shortest period of time. The current focus of Advanced Concepts, the Network Warfare Simulation (NETWARS) model, addresses communications burden issues. The NETWARS model will assess the effects of full operational combat traffic loading on current and future tactical communications systems and networks in a Joint Task Force Major Theater of War scenario; conduct quick-turn communications planning for small regional conflicts or peacekeeping scenarios; and evaluate new communication systems and technologies. Funding for the Advanced Concept/NETWARS program increased \$17M over the period FY01-05, incorporated above. This increased funding will accelerate the addition of features and the development of device models for military unique equipment and systems, increase the number and scope of scenarios examined, and supports verification and validation and modeling standards development. It will also dramatically strengthen the ability to assess the impact of new technologies and operational concepts on military communications networks. The second subprogram is Joint Warrior Interoperability Demonstrations (JWID). JWID are Joint Staff-sponsored C4I demonstrations of existing, off-the-shelf, new and evolving C4I technologies. The demonstrations, which are jointly screened to determine ability to satisfy warfighting requirements, enable warfighters to operate these capabilities and assess their ability to enhance their operational missions.

* Costs beyond FY05 will be limited to on-going support, augmentation, and modification costs. The completion of NETWARS development by FY 2005/4th Qtr assumes moderate inputs from analytical users and resultant additions and revisions to the NETWARS requirements, but assumes no significant or radical changes to the NETWARS software / model requirements.

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide, Joint Staff/BA 7	R-1 ITEM NOMENCLATURE C4I for the Warrior	0303149J
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B. Program Change Summary.

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>
FY 2000 President's Budget	2.798	3.018	2.915	2.974
FY 2000 Appropriated Value		3.018		
Adjustments to Appropriated Value:				
a. Reallocation of non-programmatic adjustments			.	
b. Congressional Non-Programmatic Adj/Inflation		-.028	-.029	-.039
c. Congressional Non-Programmatic Rescission		-.008		
d. Programmatic Increase to fund NETWARS			2.600	3.000
FY 2001 President's Budget	2.798	2.982	5.486	5.935
Programmatic Adjustments				

Reason for Change: Congressional Non-programmatic adjustments/inflation. Programmatic increase initiated is to fully fund NETWARS program.

C. Other Program Funding Summary

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
O&M Defense-Wide	1.163	1.467	1.488	1.396	1.389	1.425	1.449	TBD	TBD
Procurement Defense-Wide	.776	.880	.861	.970	.969	.951	.930	TBD	TBD

D. Acquisition Strategy: N/A.

E. Schedule Profile.

The RDT&E will be spent during various quarters of each FY.

Exhibit R-2a, RDT&E Project Justification

Date: February 2000

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7		PROGRAM ELEMENT 0303149j			PROJECT NAME AND NUMBER C4I for the Warrior – Advanced Concepts					
Cost (\$ in Millions)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005		Cost to Complete	Total Cost
Advanced Concepts	2.636	2.779	5.285	5.757	6.284	6.465	6.661		TBD	TBD
RDT&E Articles Qty	n/a	n/a	n/a	n/a	n/a	n/a	n/a			

A. Mission Description and Budget Item Justification

The C4I for the Warrior concept, Network-centric operations along with the implementation of the Global Information Grid are key concepts for promoting joint coalition C4 interoperability worldwide. This program provides focus and visibility into resolving C4 interoperability issues and provides organizing principles, policy, and doctrine for information superiority as directed by JV2010. C4IFTW stresses interoperability and leverages the rapid pace of C4 technology advancements. The Advanced Concepts subprogram is intended to leverage commercial technologies and government-funded developments to provide high-priority technologies to the warfighter in the shortest period of time. The initiative provides “seed money” to help focus on large scale advanced development efforts to satisfy current and projected warfighter needs. A primary means to evaluate emerging C4ISR technologies, from a requirement point of view, is via simulation. This simulation will be capable of evaluating emerging technologies, performing communications assessment, and doing contingency planning. It will be evolved through prototyping, database development, and rigorous verification and validation. The objective is to use the simulation to investigate high priority warfighter C4ISR technologies in the context of realistic warfighter scenarios. The current focus of Advanced Concepts, the Network Warfare Simulation (NETWARS) model, addresses communications burden issues. This effort will start with small joint service scenarios, evolve to include complete Joint Task Force (JTF) scenarios, and ultimately to a Major Theater of War (MTW) with the thousands of communications nodes in a JTF each individually represented in detail in the NETWARS model. Ultimately, the CINCs will have a tool to assist them in conducting network management scenarios to optimize and insure full and efficient C4 systems.

<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Description</u>
1.000	.811	1.600	1.600	Software Development
.200	.200	.200	.200	Verification & Validation
.000	.000	.000	.400	P3I
.711	.763	2.134	2.652	Developmental Studies & Data Expansion
.400	.400	.400	.400	Program Mgmt
.100	.100	.100	.100	Configuration Mgmt
.200	.180	.180	.180	Contractor Eng. Support (FFRDC)
.000	.000	.250	.000	Independent Cost Estimate (FFRDC)
.000	.250	.100	.100	Standardization
.025	.025	.221	.025	COTS HW & SW
.0	.050	.100	.100	Maintenance
2.636	2.779	5.285	5.757	Total

B. Other Program Funding Summary: not applicable

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	PROGRAM ELEMENT 0303149j	PROJECT NAME AND NUMBER C4I for the Warrior – Advanced Concepts
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C. Program Development Strategy:
FY 1997: A Mission Needs Statement was developed and signed. Subsequent to initiating model development, an extensive Program Development Plan was developed and approved by the Director, Command, Control, Communications, and Computer (C4) Systems Directorate (J-6). A proof-of-concept effort validated the concept and determined that NETWARS would support the requirements. *FY 1998:* A Configuration Management Plan, Software Development and Integration Plan, and Systems Architecture Design Plan were developed. Initiated software and communications modules development, and integration. NETWARS Toolkit Version 1.1 functional requirements were derived, documented, and formalized. JWARS initial requirements for C4 were evaluated relative to expected analytical outputs from NETWARS. *FY 1999:* Based on further refinement and analysis of requirements, initiated a transition to lower risk developmental software, and toward building the NETWARS Toolkit Advanced Development, Interim Version. Concurrent communications studies of accepted Joint Task Force (JTF) scenarios will help to refine requirements, the development of data, and the development of models that represent the C4 processors, systems, and networks used in a JTF, that will become part of the NETWARS data and model repository. Continued development of NETWARS standards. *FY 2000-2001:* Interim Version 2.0 provided to CINCs/Services/Agency (C/S/A) users, including a training course, in Nov 1999. Continued development of NETWARS Toolkit Advanced Development, Version 2.0, associated documentation, and completion of parallel developmental studies of Southwest Asia, and Northeast Asia, and other Joint Task Force (JTF) scenarios, - - of up to 20,000 communications nodes - - and gathering requirements from model users. Develop requirements for Version 3.0 based on formal requirements capture subsequent to extensive use of both the NETWARS Toolkit Advanced Development, Interim Version, and the NETWARS Toolkit Advanced Development, Version 2.0, by the CINCs, Services, and Agencies. Continued development of data in conjunction with communications studies conducted in parallel with model development.

D. Schedule Profile:
 The first Phase review was 23 September 1997, when the Phase I “proof of concept” results were presented to the J-6 and Service/agency representatives. The mid-Phase II In-Progress Review (IPR) to the J-6 and the Service/agency reps was held on 19 December 1997. Block I formally began in March 1997 and involved researching and writing a detailed NETWARS development plan, followed by conducting a “proof of concept” prototype demonstration of a small JTF scenario of 100 to 200 communications nodes. Block II began in mid-September 1997, and was completed in October 1998. In Block II, J6I continued the design and building to complete version 1.1 of the front-end toolset database, and completed a study of a small JTF of up to 5000 nodes, and a JTF scenario of up to 10,000 nodes. The scenario selected was the Synthetic Theater of War (STOW)/United Endeavor 98-1 scenario, which involved a Joint Task Force defense of Kuwait. Block III, Version 2.0, which began in April 1999, will involve advanced development, testing, and building of the Interim Version, and Version 2.0 front-end tool set database for NETWARS, plus completing a large major theater of war Joint Task Force scenario of up to 20,000 communications nodes. Version 2.0 phase review was 15 Dec 1999.

(Fiscal Qtr)	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				<u>FY2002</u>
	1	2	3	4	1	2	3	4	1	2	3	4	
Contract Award -- Feb 99 to SRI(Contract revision Jan 00													
IOC								X					
FOC (FY 2005/4 th Qtr)													

Exhibit R-2a, RDT&E Project Justification

Date: February 2000

APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7		PROGRAM ELEMENT 0303149j			PROJECT NAME AND NUMBER C4I for the Warrior – Joint Warrior Interoperability Demonstration (JWID)					
Cost (\$ in Millions)	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005		Cost to Complete	Total Cost
JWID	.162	.203	.201	.178	.185	.180	.174		TBD	TBD
RDT&E Articles Qty	n/a	n/a	n/a	n/a	n/a	n/a	n/a			

A. Mission Description and Budget Item Justification

The C4I for the Warrior concept, Network-centric operations along with the implementation of the Global Information Grid are key concepts for promoting joint coalition C4 interoperability worldwide. This program provides focus and visibility into resolving C4 interoperability issues and provides organizing principles, policy and doctrine for information superiority as directed by JV 2010. C4IFTW stresses interoperability and leverages the rapid pace of C4I technology advancements. The Joint Warrior Interoperability Demonstrations (JWIDs) (subprogram) are Joint Staff-sponsored demonstrations of evolving low-cost, low-risk C4I technologies and joint interoperability solutions impartially presented to the CINCs and Military Services in an operational environment. Specific demonstrations are selected to fulfill identified warfighter deficiencies and are designed to provide the opportunity to experiment with new and evolving capabilities, assess their value, and recommend them for implementation where appropriate. JWIDs provide a structured process where new C4 capabilities are rapidly inserted after being rigorously vetted, evaluated, and assessed by the warfighter. JWIDs are integral components of the "C4I for the Warrior" (C4IFTW) concept and the Joint Vision 2010 (JV 2010) conceptual template for future joint warfighting. Demonstrations are required to conform with established standards on systems interoperability and must also be integrated into approved architectures that are Defense Information Infrastructure (DII)/Common Operational Environment (COE) Joint Tactical Architecture (JTA) compliant.

<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY2002</u>	<u>Description</u>
.162	.203	.201	.178	Contract Engineering and Technical Support
.162	.203	.201	.178	Total

B. Other Program Funding Summary

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Complete</u>	Total <u>Cost</u>
O&M Defense-Wide	1.263	1.467	1.488	1.396	1.389	1.425	1.449	TBD	TBD
Procurement Defense-Wide	.776	.880	.861	.970	.969	.951	.930	TBD	TBD

C. Acquisition Strategy: N/A

D. Schedule Profile.

The RDT&E will be spent during various quarters of each FY.

Exhibit R-3 Cost Analysis (page 1)									Date: February 2000			
APPROPRIATION/BUDGET ACTIVITY 0400/BA7			PROGRAM ELEMENT 0303149j						PROJECT NAME AND NUMBER C4IFTW			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY00 Cost	FY 00 Award Date	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Definition & Proof of Concept	CPFF	SRI, MITRE	.430	0	TBD	0	TBD	0	TBD	TBD	TBD	
Software Development	CPFF	SRI	2.274	.811	TBD	1.600	TBD	1.600	TBD	TBD	TBD	
Pgm Mgmt	CPFF	SRI/SAIC	1.366	.400	TBD	.400	TBD	.400	TBD	TBD	TBD	
COTS Hardware and Software	CPFF	SRI	.370	.025	TBD	.221	TBD	.025	TBD	TBD	TBD	
Subtotal Product Development			4.440	1.236		2.221		2.025		TBD	TBD	
Remarks:												
Communications Developmental Studies	CPFF	SRI	1.033	.763	TBD	2.134	TBD	2.652	TBD	TBD	TBD	
Configuration Mgmt	CPFF	SRI	.242	.100	TBD	.100	TBD	.100	TBD	TBD	TBD	
Maintenance	CPFF	SRI	.127	.050	TBD	.100	TBD	.100	TBD	TBD	TBD	
P3I	CPFF	SRI						.400				
Subtotal Support			1.402	.913		2.334		3.252		TBD	TBD	
Remarks												

R-1 Shopping List - Item No 134

Exhibit R-2a, RDT&E Cost Analysis

Exhibit R-3 Cost Analysis (page 2)									Date: February 2000			
APPROPRIATION/BUDGET ACTIVITY 0400/BA 7			PROGRAM ELEMENT 0303149j						PROJECT NAME AND NUMBER C4IFTW			
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY00 Cost	FY 00 Award Date	FY01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Verification & Validation		DISA	.700	.200	TBD	.200	TBD	.200	TBD	TBD	TBD	
Subtotal T&E			.700	.200		.200		.200		TBD	TBD	
Remarks												
Contractor (FFRDC) Eng Support		MITRE	.549	.180	TBD	.180	TBD	.180	TBD	TBD	TBD	
Independent Cost Estimate (ICE) (FFRDC)		MITRE	.100	0	TBD	.250	TBD	0	TBD	TBD	TBD	
Contract Engineering and Technical Support (JWID)		Various	.549	.203	TBD	.201	TBD	.178	TBD	TBD	TBD	
NETWARS Standardization		Various		.250		.100		.100				
Subtotal Management			1.198	.633		.731		.458		TBD	TBD	
Remarks												
Total Cost			7.740	2.982		5.285		5.757		TBD	TBD	
Remarks Awards to SRI under sole source contract, awarded Feb 99												

R-1 Shopping List - Item No 134

Exhibit R-2a, RDT&E Cost Analysis