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EXHIBIT R-2, RDT&E Budget Item Justification	February 2006						
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-4**	R-1 ITEM NOMENCLATURE PE 0603382N Advanced Combat System Technology						

COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	61.474	33.605	12.398	22.591	23.259	23.941	25.909
0324/Advanced Combat System Technology	61.474	29.705	12.398	22.591	23.259	23.941	25.909
9999/Congressional Adds	0.000	3.900	0.000	0.000	0.000	0.000	0.000
RDT&E Articles Qty							

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Advanced Combat System Technology line provided engineering studies, real time instrumentation, risk reduction experiments conducted in a distributed computer architecture, radar technology, and Tactical Information Management (TIM) concepts in a computing testbed to mature them as transition candidates for introduction into warfare systems programs of record. It implements the results of system engineering experiments with currently emerging Commercial-Off-the-Shelf (COTS) computer technologies and distributed processing advances to replace the current computing architectures of various IWS programs with an open, distributed architecture. A priority is the design of the flow and display of tactical information through the "detect-control-engage" process to provide decision quality information.

Funding is included to move all Naval systems, family of systems, and programs to Open Architectures and highly integrated system of systems that will function in FORCEnet. This effort will establish DoN policies and governance for Open Architecture (OA) development and migration of all Navy combat system development to an open systems approach. This development effort will identify the business case and return on investment for moving the Navy towards an open systems approach, support the development of open systems technologies, and integrate best practices for open systems development within Naval acquisition. The OA will ensure Navy-wide system architectures are extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, and reuse methodologies. In summary, this funding supports systems engineering required across all Naval systems as they are migrated to function in a joint net centric warfare environment.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	6.012	4.189	1.653
RDT&E Articles Quantity			

OA Enterprise Strategy and Governance – This funding supports the quarterly/semiannual OA EXCOMM executive committee and continued activities of the OA Executive Team (OAET). The OAET is the key governance body that ensures the open systems approach is developed and applied across the Navy in a cohesive and implementable manner. The OAET is the single interface between IWS 7 and the rest of the OA community of interest. Also funds the OAET working groups such as the Business, Communications, Standards, and Architecture working groups. These groups work across Naval domains to ensure architectures will be extensible and scaleable in function, capacity, and workload to meet Joint warfighting requirements across platforms in the Joint Net-Centric Environment.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.968	3.529	1.100
RDT&E Articles Quantity			

OA Enterprise Communications and Training –This funding supports the activities to enable the cultural adoption of OA principals and practices through stakeholder management, communications, training, and OA Knowledge Management. Key activities include the development on an enterprise workforce training and education program and establishment of professional curricula (OA modular acquisition and OA systems engineering) with academia and Naval Institutes. This program plan includes participation, liaison, and coordination with multiple stakeholders including the OSD Open Systems Joint Task Force (OSJTF), Net Centric Operations Industry Consortium (NCOIC), FORCEnet, Industry Days, and other communication vehicles, to ensure the optimal OA standards and technologies are identified and incorporated into Naval system acquisition.

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	6.562	10.954	4.857
RDT&E Articles Quantity			

OA Program Maturity Development – This funding supports the assessment of systems, family of systems, and programs (ACAT I - IV) to determine the baseline OA maturity and compliance with Modular Open Systems Architecture (MOSA). This includes the identification of cross-domain and enterprise components and analysis of business and technical alternatives to determine return on investment for re-use. The OA Program Maturity Development includes the establishment of mission focused Communities of Interest to provide end-to-end mission based OA compliant capabilities. This includes the OA/FN Experimentation which is an effort to develop an Enterprise level OA-FN demonstration, test and certification testing capability to enable the Naval community to evaluate candidate components for interoperability reuse potential and NII Net-Ready KPP achievement in a timely and more affordable manner. In addition, this effort will assist in aligning the OA and FN activities in a concrete and demonstrable manner oriented to a Build-Assess-Build experimentation process to collect cross-domain reuse feasibility opportunities and potential interoperability metrics for early feedback into the acquisition and engineering process. Participation and contribution of key technical expertise that enables the development of an implementable OA design that incorporates reusable hardware and software and fulfills Net-Centric Warfare, GiG, ForceNet, and other technical requirements, while ensuring the operator's capability needs are always met. Includes the collaborative development of OA design processes, architectures, and other engineering documents between System Commands and PEO's across Naval domains. Key areas of technical expertise included but are not limited to process development, Naval acquisition, information transfer, information management, resource management, information assurance, time synchronization, programming languages, development tools, and displays.

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APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603382N Advanced Combat System Technology	0324 Advanced Combat System Technology

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	9.082	9.841	3.953
RDT&E Articles Quantity			

OA Implementation and Integration across Naval Domains- Continue supporting the integration of OA policy, design guidance, and technologies into specific Naval domains, system commands, and PEOs. Provide for the direct support of programs to implement OA-related processes and technologies within legacy and developmental Naval systems.

OA Business Strategy - Development of an acquisition strategy addressing incentives, intellectual property issues, contracting (integrators vs. primes), and funding alternatives.

OA Test Facility – Study and recommendation of Test & Evaluation facilities and process changes required to support the fielding of OA-based products and systems. Continued participation of key technical expertise that enables OA application portability validation, Program of Record OA migration risk mitigation, OACE technology evaluations, verification of OA with legacy systems (connection with DEP), proof-of-concept for RCIP. Also includes evaluation of Jointly produced software, such as the IABM. Includes development, maintenance, and use of the OA Asset Repository, and configuration management of software within the repository.

OA Standards- Evaluation of domain standards and current commercial standards to identify enterprise OA standards and align domains accordingly (e.g. NESI, OACE). Activities include the development, maintenance, and issuance of enterprise standards and guidance.

OA Technology Bridging - Provides the new front-work required to prepare for tomorrow's OA technologies in support of OA COTS Technology Refresh. Work with Science & Technology (S&T) communities (e.g. DARPA and Office of Naval Research (ONR)) to provide domain specific problems on which to focus S&T investment and validation of candidate technologies against these domain specific performance requirements. Provide engineering quality lessons learned and benchmarking information back to S&T sponsors and technology developers for enhancements. Ensure that emerging technology advances can be inserted at the proper time and pace to enable the management of COTS obsolescence throughout the OA lifecycle via the Technology Refresh Process that meets the Fleet's Technology Insertion cycles.

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B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	36.650	0.000	0.000
RDT&E Articles Quantity			

AEGIS OA Common Components - Builds upon Aegis Open Architecture 3-Spiral plan (Spy, Advanced Display Upgrade, and Weapons Control) to define Combat System level requirements that adhere to OA guidance for commonality (OACE Category-4) across USN combat systems. Design Aegis Weapon System elements to be re-usable across USN combat systems. Provide Requirements, Design, Development and Test performance of Independence Verification and Validation (IV & V).

	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	1.200	1.192	0.835
RDT&E Articles Quantity			

OA Financial, Technical, and Administrative Support Services – Provides support services for OA development in the following areas: Contract financial management, war room operations, Integrated Development Environment (IDE), technical support, OA policy and instruction development, program-related Risk Management and Cost Analysis, and dedicated executive assistant support to government principles. Provides senior engineering architecture expertise. Includes coordination, planning, facility rental, VTC use, and other aspects of meeting support for the OAET, OAET subgroups, and the OA Executive Committee.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology

C. PROGRAM CHANGE SUMMARY:

	FY 2005	FY 2006	FY 2007
Funding:			
FY06 President's Budget:	66.951	30.166	30.753
FY07 President's Budget:	61.474	33.605	12.398
Total Adjustments	-5.477	3.439	-18.355
Summary of Adjustments			
Programmatic change	0.000	0.000	-18.200
Other misc. changes	0.000	0.000	-0.155
Congressional Adds	0.000	3.900	0.000
General provisions	-0.051	-0.461	0.000
SBIR:	-0.891	0.000	0.000
Cancelled Accounts Liabilities	-0.085	0.000	0.000
Above Threshold Reprogramming:	-4.450	0.000	0.000
Subtotal			
	-5.477	3.439	-18.355

Schedule:

N/A

Technical:

N/A

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EXHIBIT R-2, RDT&E Budget Item Justification		**February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0604307N/ 1447 (AEGIS Surf Combatant Combat Sys Imp)	136.011	200.743	151.594	95.169	72.118	88.068	87.825	CONT.	831.528
PE 0604755N/ 2178 (Ship Self Defense System)	47.305	39.874	3.534	0.000	0.000	0.000	0.000	0.00	90.713
PE 0603582N/ 0164 (Common Network Integration)	25.000	25.243	25.428	21.550	25.520	0.000	0.000	CONT.	122.741
PE 0603658N/2039 (Cooperative Engagement Capability)	99.618	86.757	53.406	50.458	53.738	57.975	55.171	CONT.	457.123

E. ACQUISITION STRATEGY:

Risk reduction efforts are lead and cordinated by NSWC/Dahlgren, the Open Architecture (OA) Technical Authority. Open Architecture Technical Guidance documentation is produced and disseminated to the various programs of record for their use in becoming OA compliant.   Additionally, an OA Test Facility is provided at NSWC/Dahlgren for hosting early validation efforts by various programs of record in evaluating their progress toward OA compliance. All of these activities are being scaled to support ASN RDA and OPNAV direction to institute Open Architecture at the enterprise level and will be executed in a wide variety of locations.

F. MAJOR PERFORMERS:

NSWC/ Dahlgren - Dahlgren, Virginia - Technical Authority for OA Program for PEO IWS
NSWC/Crane, Carderock, & ANTEON- Program Management Support
NUWC/Newport-OA Domain Support
NAVAIR - OA Domain Support
Industry: Lockhead Martin, IBM, ANGLE
SPAWAR-OA Domain Support
MITRE & SEI-FFRDC

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Exhibit R-3 Cost Analysis (page 1)												
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			0603382N Advanced Combat System Technology			0324 Advanced Combat System Technology						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Component Development												
SE/OA Domain Support	SS/CPFF	APL / Baltimore, MD	0.000	0.250		0.250		0.250		0.000	0.000	
Systems Engineering	WX	NSWC / Dahlgren, VA	12.349	16.802	12/04	7.876		2.680		Continuing	Continuing	
Systems Engineering	CPAF	Lockheed Martin, NJ	0.000	25.467	12/04	0.000		0.000				
Systems Engineering	WR	NAWCAD / St. Inigoes, MD	0.000	0.000		0.000		0.000		0.000	0.000	
Systems Engineering	WX	NSWC/CRANE & Carderock	0.000	0.395		0.400		0.360				
Systems Engineering	WX	NSMA Arlington, VA	0.000	2.410		0.000		0.000				
Systems Engineering	WX	Miscellaneous	0.000	0.000		4.572		0.634				
Training Development		ONR	2.301	0.000		0.000		0.000				
OA DOMAIN SUPPORT	WX	NUWC/Newport, Spawar, Navair	0.000	1.838		12.213		4.867				
Award Fees	CPAF	Lockheed Martin, NJ		3.779		0.000		0.000				
Subtotal Product Development			14.650	50.941		25.311		8.791		Continuing	Continuing	
Remarks:												
Development Support											0.000	
Software Development	WX	MITRE,SEI	0.000	0.310		0.450		0.150				
Industry Development	CPAF	IBM, ANGLE	0.000	3.028	11/04	3.028	03/05	1.120	10/06			
Integrated Logistics Support												
Configuration Management												
Technical Data-Academia	WR	NPS-Monterey/DAU	0.000	0.400		0.150		0.105				
Addvisory Engineering Support-SAG	CPAF	Miscellaneous	0.000	0.177	11/05	0.150	03/05	0.000				
Award Fees												
Subtotal Support			0.000	3.915		3.778		1.375		Continuing	Continuing	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)										**February 2006**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603382N Advanced Comba	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology								
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Miscellaneous	0.000							0.000	0.000	
Operational Test & Evaluation	WX	NSWC/DD	0.000	4.618		2.174		1.398				
OA Asset Repository(SBIR Account)	WX	Miscellaneous	0.000	0.800		0.150		0.000				
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	5.418		2.324		1.398		0.000	9.140	
Remarks:												
Contractor Engineering Support			0.000									
Government Engineering Support												
Program Management Support	CPAF	Miscellaneous	0.283	1.200	11/04	1.192	TBD	0.834	TBD	Continuing	Continuing	
Travel												
Labor (Research Personnel)												
SBIR Assessment(Cong Add)						1.000						
Subtotal Management			0.283	1.200		2.192		0.834		Continuing	Continuing	
Remarks:												
Total Cost			14.933	61.474		33.605		12.398		Continuing	Continuing	
Remarks:												

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EXHIBIT R4, Schedule Profile	DATE: February 2006

APPROPRIATION/BUDGET ACTIVITY/PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /BA-4 0603382N Advanced Combat System Technolog	0324/Advanced Combat System Technology

Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Acquisition

Milestones

OA Technical Stds & Design Guidance Design Reviews — Design Review △ markers appear in 2006 Q1, 2006 Q4, 2007 Q4, 2008 Q3, 2009 Q3, 2010 Q4

OA Functional Architecture Design Reviews — Design Review △ markers appear in 2006 Q1, 2006 Q4, 2007 Q4, 2008 Q3, 2009 Q3, 2010 Q4, Design Review 2011 Q1, Design Review 2011 Q4

Test & Evaluation
Milestones

DDX Rel OA Validation Tests:
- REL 3 Validation Test △ (2006 Q1)
- REL 4 Validation Test △ (2006 Q4)
- REL 5 Validation Test △ (2007 Q4)
- REL 6 Validation Test △ (2008 Q3)
- REL 7 Validation Test △ (2009 Q3)

CG/DDG OA Validation Tests of Spirals:
- Spiral 1 Validation Test △ (2006 Q1)
- Spiral 2 Validation Test △ (2006 Q3)
- Spiral 3 Validation Test △ (2008 Q3)
- Spiral 4 Validation Test △ (2009 Q2)

CG/DDG OA:
- (12) LOR ——— (6) LAR ➤

LCS OA Validation Tests:
- Rel 1 Val Test △ (2007 Q4)
- Rel 2 Val Test △ (2008 Q3)
- Rel 3 Val Test △ (2009 Q3)

CVN/L-CLASS EDM:
- EDM Complete △ (2007 Q3)

Production Milestones

Deliveries

* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4a, Schedule Detail				**February 2006**		
APPROPRIATION/BUDGET ACTIVITY **RDT& BA-4**	PROGRAM ELEMENT 0603382N Advanced Combat System Technology			PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology		

Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
OA Technical Stds & Design Guidance Design Reviews	4Q	4Q	4Q	4Q	4Q	4Q	4Q
OA Functional Architecture Design Reviews	4Q	4Q	4Q	4Q	4Q	4Q	4Q
DDX Rel OA Validation Tests							
REL 3	4Q						
REL 4		4Q					
REL 5			4Q		4Q		
REL 6				4Q			
REL 7							
CG/DDG OA Validation Tests of Spirals							
SPIRAL 1	3Q						
SPIRAL 2		3Q					
SPIRAL 3				4Q			
SPIRAL 4					3Q		
LOR	1Q						
LAR	3Q						
LCS OA Validation Tests							
REL 1			4Q				
REL 2				3Q			
REL 3					4Q		
CVN/L-CLASS EDM			3Q				
OA Enterprise Activities	4Q	4Q	4Q	4Q	4Q	4Q	4Q

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EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME Project Unit 9999 Name: Congressional Adds : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9796N				
Advanced Combat System Technology	1.000			

Advanced Combat System Technology -This funding will assist the Navy in the development of Open Architecture subsystems and components for rapid incorporation of functionality that immediately addresses current warfighter gaps or deficiencies that may exist within current command and control systems. This development effort will facilitate the transitioning of legacy algorithms and functionality to adhere to OA principles, as well as working with the Office of Naval Research (ONR) and other Federally Funded Research and Development Centers to leverage capabilities being developed through their Science and Technology efforts.

	FY 06			
9797N				
High Pressure Pure Air Generator	1.400			

High Pressure pure air generator development.

	FY 06			
9798N				
Multiview Data Standards	1.500			

Multiview Data Standards for the integrated digital environment -This R&D funding will encourage and accelerate introduction of an advanced data management capability which provides a much finer level of detail for capturing, managing and tracing data across multiple domains of information that will contribute to dramatic reductions in cost and schedule while improving quality and eliminating errors in the design and development of large complex defense systems.