

EXHIBIT R-2, RDT&E Budget Item Justification (page 1)

APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE						
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY /BA-4		PE 0603382N Advanced Combat System Technology						
COST (\$ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	30.434	12.319	9.331	9.586	10.321	12.288	12.299	10.320
0324/Advanced Combat System Technology	26.619	12.319	9.331	9.586	10.321	12.288	12.299	10.320
9999/Congressional Adds	3.815	0.000	0.000	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. A priority is the design of the flow and display of tactical information through the "detect-control-engage" process to provide decision quality information.

Project Unit 0324: Funding is included to ensure all Naval systems, family of systems, and programs move to modular Open Architectures (OA) in accordance with DoDD 5000.1 dated 12 May 2003 which mandates all DoD programs to utilize open systems architecture in order to rapidly field affordable, interoperable systems. By direction of the Navy SAE, PEO IWS is assigned overall responsibility and authority to direct the Navy's OA effort which this project supports. This effort establishes acquisition strategies, develops guidance, and develops analysis of alternatives to determine OA software reuse practices within and across all Navy Communities of Interest (COI - surface, subsurface, air, space, and C4I). This project also works closely with the Test and Evaluation (T&E) and certification communities in defining regression testing and certification requirements for all OA Commercial Off-the-Shelf upgrades and software reuse applications. Ultimately, this project works to identify cross-domain/COI components for cost reduction and reuse throughout the whole Navy. 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. This Naval OA project 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.

Funding includes FY06 congressional adds for the advanced combat system technology, the high pressure pure air generator and for the development of the multiview data standards for the integrated digital environment.

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget: (FY 07 Pres Controls)	33.605	12.398	22.591	23.259
Current President's Budget: (FY08/09 Pres Controls)	30.434	12.319	9.331	9.586
Total Adjustments	-3.171	-0.079	-13.260	-13.673
Summary of Adjustments:				
Program Adjustment	0.000	0.000	-12.500	-13.000
Misc. Changes			-0.760	-0.673
Undistributed General Reductions	-0.147	-0.079		
Congressional Action	-0.024	0.000	0.000	0.000
Reprogramming	-3.000	0.000	0.000	0.000
Subtotal	-3.171	-0.079	-13.260	-13.673

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APPROPRIATION/BUDGET ACTIVITY			PROJECT NUMBER AND NAME							
RDT&E, N / BA-4			0324 Advanced Combat System Technology							
C. OTHER PROGRAM FUNDING SUMMARY:										
<u>Line Item No. & Name</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>To Complete</u>	<u>Total Cost</u>
PE 0604307N/ 1447 (AEGIS Surf Combatant Combat Sys Imp)	197.233	140.669	142.810	132.101	158.783	137.595	104.669	98.572	CONT.	1112.432
PE 0604755N/ 2178 (Ship Self Defense System)	47.364	3.521	26.772	31.042	25.377	30.999	33.644	34.358	0.00	233.077
PE 0603582N/ 0164 (Common Network Integration)	23.155	25.428	14.890	13.892	0.000	0.000	0.000	0.000	CONT.	77.365
PE 0603658N/2039 (Cooperative Engagement Capability)	82.607	53.138	33.283	39.174	49.412	46.444	46.727	47.039	CONT.	397.824
D. ACQUISITION STRATEGY:										
<p>Risk reduction efforts are lead and coordinated by NSWC/Dahlgren, the Open Architecture (OA) Technical Authority for PEO IWS 1.0. 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 NSWCDD 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.</p>										
E. MAJOR PERFORMERS:										
<p>NSWC/ Dahlgren - Dahlgren, Virginia - Technical Authority for OA Program for PEO IWS NSWC/Crane, Carderock, & ALION- Program Management Support NUWC/Newport-OA Domain Support NAVAIR - OA Domain Support Industry: IBM, ANGLE SPAWAR-OA Domain Support MITRE & SEI-FFRDC</p>										

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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
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B. Accomplishments/Planned Program

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	4.192	1.689	1.318	1.353
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, 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 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	2.682	1.154	0.945	0.948
RDT&E Articles Quantity				

OA Enterprise Communications and Training – This funding supports the activities to enable the cultural adoption of OA principles 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 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	8.975	4.530	2.922	3.611
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 RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 0324 Advanced Combat System Technology
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B. Accomplishments/Planned Program (Cont.)

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	9.578	4.111	3.396	2.959
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 program 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 challenge 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.

	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	1.192	0.835	0.750	0.715
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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Exhibit R-3 Cost Analysis (page 1)												February 2007			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603382N			0324 Advanced Combat System Technology									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 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	0.250	0.550	04/06	0.200	11/06	0.200	12/07	0.225	10/08	0.000	0.000		
Systems Engineering	WX	NSWC / Dahlgren, VA	16.302	5.891		1.996		1.230		1.252		Continuing	Continuing		
Systems Engineering	CPAF	Lockheed Martin, NJ	25.467	0.000		0.000		0.000		0.000					
Systems Engineering	WR	NSWC Indian Head	0.000	0.000		0.156		0.000		0.000		0.000	0.156		
Systems Engineering	WX	NSWC/CRANE & Carderock	0.395	0.803		0.720		0.320		0.320					
Systems Engineering	WX	NSMA Arlington, VA	2.410	0.000		0.000		0.000		0.000					
Systems Engineering	WX/CPAF	Miscellaneous	0.500	2.695		0.732		1.247		1.267					
OA DOMAIN SUPPORT	WX	NUWC/Newport, Spawar, Navair	1.838	8.121		3.790		3.540		3.711					
Award Fees	CPAF	Lockheed Martin, NJ	3.779	0.000		0.000		0.000		0.000					
Subtotal Product Development			50.941	18.060		7.594		6.537		6.775		Continuing	Continuing		
Remarks:															
Development Support													0.000		
Software Development	WX	MITRE,SEI	0.310	0.309		0.000		0.000		0.000					
Industry Development	CPFF	IBM, ANGLE	3.028	2.799	02/06	2.300	11/06	0.753	11/07	0.753	10/08				
Integrated Logistics Support															
Configuration Management															
Technical Data-Academia	WR	NPS-Monterey/DAU	0.400	0.500		0.548		0.184		0.184					
Advisory Engineering Support-SAG	CPAF	Miscellaneous	0.177	0.000		0.000		0.000		0.000					
Award Fees															
Subtotal Support			3.915	3.608		2.848		0.937		0.937		Continuing	Continuing		
Remarks:															

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Exhibit R-3 Cost Analysis (page 2)												February 2007		
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT		PROJECT NUMBER AND NAME									
RDT&E, N / BA-4			0603382N		0324 Advanced Combat System Technology									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 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	4.618	1.174		1.042		1.107		1.159				
OA Asset Repository(SBIR Account)	WX	Miscellaneous	0.800	0.150		0.000		0.000		0.000				
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			5.418	1.324		1.042		1.107		1.159		0.000	10.050	
Remarks:														
Contractor Engineering Support			0.000											
Government Engineering Support														
Program Management Support	CPAF	Miscellaneous	1.200	1.192	06/06	0.835	11/06	0.750	11/07	0.715	11/08	Continuing	Continuing	
Travel														
Labor (Research Personnel)														
SBIR Assessment(Cong Add)			0.000	2.435		0.000		0.000		0.000				
Subtotal Management			1.200	3.627		0.835		0.750		0.715		Continuing	Continuing	
Remarks:														
Total Cost			61.474	26.619		12.319		9.331		9.586		Continuing	Continuing	
Remarks:														

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EXHIBIT R-2a, RDT&E Project Justification		February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4	PROGRAM ELEMENT NUMBER AND NAME PE 0603382N Advanced Combat System Technology	PROJECT NUMBER AND NAME 9999 Congressional Plus-Ups : VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9796N				
Advanced Combat System Technology	0.958			

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 second source	1.380			

High Pressure pure air generator development.

	FY 06			
9798N				
Multiview data standards for the integrated digital env	1.477			

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.