Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy

Date: February 2015

Appropriation/Budget Activity

R-1 Program Element (Number/Name)

1319: Research, Development, Test & Evaluation, Navy I BA 4: Advanced

PE 0603382N / Advanced Combat Systems Tech

Component Development & Prototypes (ACD&P)

COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	62.573	1.510	1.639	1.636	-	1.636	1.775	1.795	1.805	1.842	Continuing	Continuing
0324: Adv Combat System Technology	62.573	1.510	1.639	1.636	-	1.636	1.775	1.795	1.805	1.842	Continuing	Continuing

Program MDAP/MAIS Code: 180

A. Mission Description and Budget Item Justification

The Advanced Combat System Technology line is to evolve the technical and business practices for programs to change to an open architecture construct. The program was constructed to mature both technical and business model integration for C5I systems programs of record in an open architecture environment. The priority was incorporating the principles of modular design and design disclosure, reusable application software, interoperability and secure information exchange, lifecycle affordability and encouraging competition and collaboration.

Project Unit 0324: Funding is to maintain and update an information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until that duty transferred to DASN (RDTE) in 2011. The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

PE 0603382N: Advanced Combat Systems Tech

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy

Date: February 2015

Appropriation/Budget Activity

1319: Research, Development, Test & Evaluation, Navy I BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 Program Element (Number/Name)

PE 0603382N / Advanced Combat Systems Tech

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	1.563	1.646	1.718	-	1.718
Current President's Budget	1.510	1.639	1.636	-	1.636
Total Adjustments	-0.053	-0.007	-0.082	-	-0.082
 Congressional General Reductions 	-	_			
 Congressional Directed Reductions 	-	-			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
 Reprogrammings 	-	-			
 SBIR/STTR Transfer 	-0.053	-			
 Program Adjustments 	-	_	-0.068	-	-0.068
Rate/Misc Adjustments	-	-0.007	-0.014	-	-0.014

Change Summary Explanation

The FY 2016 funding request was reduced by \$.068 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project J	ustification:	PB 2016 N	lavy							Date: Febr	uary 2015	
Appropriation/Budget Activity 1319 / 4		_	am Elemen 32N <i>I Advan</i>	•		Number/Name) dv Combat System Technology						
COST (\$ in Millions)	Prior FY 2016 FY 2016 FY 2016				FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost		
0324: Adv Combat System Technology	62.573	1.510	1.639	1.636	-	1.636	1.775	1.795	1.805	1.842	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Unit 0324: Funding is to maintain and update a information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until the duty transferred to DASN (RDTE) in 2011 The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2016	FY 2016	FY 2016
	FY 2014	FY 2015	Base	oco	Total
Title: Align the Naval Enterprise Across All Domains to Implement OA	0.257	0.272	0.292	-	0.292
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Supported the execution of Naval OSA Policy and Strategy, including OSAET meetings for the enterprise (as scheduled) and OSA program reporting requirements. Specifically, this included OSAET reporting of action items to DASN RDT&E, quarterly OSA Reports to Congress via ASN RDA, as well as the annual OSA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also included the development and management of all other activities as DASN RDT&E or ASN RDA directs. The OSA					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: Febr	uary 2015		
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number PE 0603382N / Advanced Comba			(Number/Name) Ndv Combat System Technology			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quan	itities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	
program also successfully completed the execution of another war game War Game Leveraging the Internet" (MMOWGLI), to help solve issues successfully property in DoD acquisitions.							
FY 2015 Plans: Establish transition of programs to fully utilize the principles and practice ASN(RDA) approved Naval OSA Strategy of November 2012. Transition from a unique OA Executive forum to a permanent organization; the Sys Continue to coordinate and develop the quarterly OA Report to Congressinancial reporting for this project. By FY-15 the Naval OSA Strategy wito stay current with changes in best practices to include all other activitie ASN(RDA) directs.	n the sustainment of the OSA initiative stems Engineering Stakeholders Group. ss, annual budget submission and Il need to be revisited and updated						
FY 2016 Base Plans: Continue FY2015 Plan in addition to: Implement Enterprise architecture of modular development and maximustandards relative to Technical Reference Frameworks attributes.	um reuse. Promote tailor-able open						
FY 2016 OCO Plans: N/A							
Title: Change the Naval and Marine Corps Cultures to Institutionalize O	A Principle Articles:	0.302	0.373	0.378	-	0.378	
FY 2014 Accomplishments: The OSA program enabled the institutional adoption of OSA principles a management, communications, mentoring, training, and curriculum adjumaintenance of Defense Acquisition University (DAU) online OSA training incorporate OSA principles into existing coursework materials, presental participation in symposia and panels to discuss OSA implementation, are promulgate OSA standards and methodologies for inclusion into Naval standards.	ustment. Key activities included ng modules, working with DAU to ition of existing training courses, and ind using other communication vehicles to						
FY 2015 Plans: Continue with direct engagement with programs to improve OA principle management, communications, mentoring, training, and curriculum adjucommunication and transparency across programs to highlight new opp	ustment. Establish and maintain						

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: Febr	uary 2015			
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/ PE 0603382N / Advanced Comba Tech			t (Number/Name) Adv Combat System Technology				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities	in Each <u>)</u>	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total		
and improved interoperability. Sustain a strong message to the public and indefective management of the acquisition portfolio.	ustry on the value of OA for cost-							
FY 2016 Base Plans: Continue with FY2015 Plan in addition to:								
Adjust funding techniques for cross-Enterprise co-development. Identify best proposed to increase the likelihood of transitioning maturing technology into programs of								
FY 2016 OCO Plans: N/A								
Title: OA Systems Engineering Leadership	Articles:	0.332	0.375	0.395		0.39		
FY 2014 Accomplishments: The OSA program supported systems engineering collaboration across the Na fielding of interoperability capabilities, including a) the further alignment of PEG guidance for government-to-government coordination of OSA implementation disciplined processes, interfaces, and services were utilized; c) worked with the community to ensure OSA is being incorporated into emerging technologies; a Evaluation (T&E) community, academia, and industry partners to identify opport through the use of OSA principles and practices. The Core OSA/OSAET continued to adopt automated test and analysis tools.	O architectures; b) provided efforts to ensure standardized and the Science and Technology (S&T) and d) worked with the Test and portunities to reduce T&E expenses							
FY 2015 Plans: Key activities of the third year of the strategy include; inter-program alignment technical frameworks. Establish transition of programs to fully utilize the princi accordance with the ASN(RDA) approved Naval OSA Strategy of November 2 and cooperation incentives, and improve techniques for finding and using mode the transformation of oversight and governance of programs that are impleme principles and practices through mechanisms such as Community of Interest f Technical Warrant Holders and Product DASN engagments.	ples and practices of OA in 2012. Establish collaboration dular capabilities. Complete nting or have implemented OA							
FY 2016 Base Plans: Continue FY2015 Plan in addition to:								

PE 0603382N: Advanced Combat Systems Tech Navy UNCLASSIFIED
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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy				Date: Febr	uary 2015		
1319 / 4	R-1 Program Element (Number/ PE 0603382N <i>I Advanced Comba</i> Tech			(Number/Name) dv Combat System Technology			
R-1 Program Element (Num PE 0603382N / Advanced Co Tech complishments/Planned Programs (\$ in Millions, Article Quantities in Each) tincentives for collaboration and cooperation between programs. Establish reward mechanisms for ams and personnel successful in achieving OSA implementations that rapidly integrate innovation and total ownership costs. M6 OCO Plans: Knowledge Products for Implementing OSA Article M14 Accomplishments: NSA program worked to improve System Reuse and Business Practices using the following tactics: velopment and refinement of policies, guidance, and terminology establishing a consistent approach for across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone ion Authorities, Program Managers, and Resource Sponsors in assessing program openness and makined OSA investment decisions; and c) the facilitation of design disclosure, information sharing, and domain component reuse to reduce costs and enable more effective technology insertion, including the histration of the OSA Information Exchange Portal hosted at Forge.mil. The Core OSA/OSAET worked woross, the PEOs to adopt automated test and analysis tools. M15 Plans: e the Program Managers OSA Workbook and other associated knowledge products to position Naval ams to take advantage of consistent business and technical practices. Establish collaboration forums at best practices can be shared so that the OA related knowledge products are kept up to date with the innovations being used in program execution. This includes working with outside organizations such as		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	
FY 2016 OCO Plans: N/A							
Title: Knowledge Products for Implementing OSA	0.619	0.619	0.571		0.57		
The OSA program worked to improve System Reuse and Business Practices using a) development and refinement of policies, guidance, and terminology establishing OSA across the Enterprise; b) the development and maintenance of analytical to Decision Authorities, Program Managers, and Resource Sponsors in assessing prinformed OSA investment decisions; and c) the facilitation of design disclosure, it cross domain component reuse to reduce costs and enable more effective techniques.	ng a consistent approach for olsets to assist Milestone program openness and making information sharing, and ology insertion, including the						
Programs to take advantage of consistent business and technical practices. Esta so that best practices can be shared so that the OA related knowledge products	are kept up to date with the putside organizations such as at DAU is addressing training to that assigns DASN RDT&E at o develop new training on OA,						
FY 2016 Base Plans: Continue FY2015 Plan in addition to: Minimize DAU courses to fill needed knowledge gaps. Establish an OSA mentor professionals.	ing program for acquisition						
FY 2016 OCO Plans:							

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603382N / Advanced Combat Systems Tech	- , ,	umber/Name) Combat System Technology

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	1.510	1.639	1.636	-	1.636

C. Other Program Funding Summary (\$ in Millions)

N/A

Navy

Remarks

D. Acquisition Strategy

This risk reduction effort evolved and shifted from a PEO IWS 1.0 task to Naval Surface Warfare Center (NSWC)/Dahlgren to an Assistant Secretary of the Navy, Research, Development & Acquisition (ASN-RDA) directed task to fund the Navy's OA Enterprise effort from this core OA Budget line (policy statement dated 5 August 2004). The strategy was further refined in the Deputy Chief of Naval Operations (DCNO) requirement of 23 December 2005 (N6/7) with guidance for this effort to assist the Milestone Decision Authority (MDA), program managers, and resource sponsors in assessing enterprise program assets where appropriate. Office of the Chief of Naval Operations (OPNAV) has directed this program to provide objective, measurable, performance based assessments as Business Case Analysis (BCA) baselines for future system changes and spiral developments.

E. Performance Metrics

Change Naval Processes and business practices to cost-effectively innovate and deploy improved warfighting capability based on fleet requirements. Provide OA Systems Engineering to field common, interoperable capabilities; Change Navy and Marine Corps Business processes to Institutionalize OA Principles.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy Date: February 2015 Appropriation/Budget Activity R-1 Program Element (Number/Name) Project (Number/Name) 1319 / 4

Tech

PE 0603382N I Advanced Combat Systems | 0324 I Adv Combat System Technology

Product Developme	nt (\$ in M	illions)		FY 2	2014	FY 2	2015		2016 ase		2016 CO	FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To	Total Cost	Target Value of Contract
SE/OA Domain Support	C/FP	APL/ IET Contract : VARIOUS	1.388	0.619	Nov 2013	0.626	Nov 2014	0.653	Nov 2015	-		0.653	-	3.286	Continuing
Systems Engineering	MIPR	NSWC / Dahlgren : Dahlgren, VA	12.839	0.220	Nov 2013	0.248	Nov 2014	0.261	Nov 2015	-		0.261	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CRANE, Carderock, DISA : VARIOUS	2.597	0.257	Dec 2013	0.265	Dec 2014	0.210	Dec 2015	-		0.210	-	3.329	Continuing
Systems Engineering	C/CPAF	ASSETT; Lockheed Martin, NJ; Gartner, VA: Washington DC	5.114	-	Nov 2013	-		-		-		-	-	5.114	Continuing
OA DOMAIN SUPPORT	WR	NUWC/Newport, Spawar, Navair : VARIOUS	11.931	-		-		-		-		-	-	11.931	Continuing
SE/Signal Processor	C/CPAF	Lockheed Martin : VARIOUS	6.000	-		-		-		-		-	-	6.000	Continuing
SE/Signal Processor	C/CPAF	BAE : VARIOUS	0.300	-		-		-		-		-	-	0.300	Continuing
SE/Signal Processor	C/CPAF	Raytheon : VARIOUS	0.100	-		-		-		-		-	-	0.100	Continuing
SE/Signal Processor	WR	NSWC/DD, NRL, PHD : VARIOUS	0.600	-		-		-		-		-	-	0.600	Continuing
		Subtotal	40.869	1.096		1.139		1.124		-		1.124	-	-	-

Support (\$ in Millions	s)			FY 2	2014	FY 2	2015		2016 ase		2016 CO	FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Industry Development	C/FP	IBM, ANGLE, TBD (New IET Contract) : VARIOUS	9.130	0.302	Nov 2013	0.373	Nov 2014	-		-		-	-	9.805	Continuing
Technical Data-Academia	WR	NPS-Monterey/DAU : MONTEREY, CA	2.109	0.112	Nov 2013	0.127	Nov 2014	-		-		-	-	2.348	Continuing

PE 0603382N: Advanced Combat Systems Tech Navy

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Exhibit R-3, RDT&E	Project C	ost Analysis: PB 2	016 Navy	,				-				Date:	February	2015		
Appropriation/Budg 1319 / 4	et Activity	1				R-1 Program Element (Number/Name) PE 0603382N I Advanced Combat Systems Tech Project (Number/Name) 0324 I Adv Combat System Technology										
Support (\$ in Million	ıs)			FY 2014		FY 2015			2016 ise	FY 2016 OCO		FY 2016 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value o Contrac	
Software Development	C/FP	TRIDENT, ASSET : VARIOUS	0.309	-		-		-		-		-	-	0.309	Continui	
		Subtotal	11.548	0.414		0.500		-		-		-	-	12.462	-	
Test and Evaluation	(\$ in Milli	ions)		FY 2	2014	FY 2	2015	FY 2016 Base		FY 2016 OCO		FY 2016 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contrac	
Operational Test & Evaluation	WR	NSWC/DD : DAHLGREN, VA	2.216	-		-		-		-		-	-	2.216	Continuir	
OA Asset Repository (SBIR Account)	WR	Miscellaneous : VARIOUS	0.150	-		-		-		-		-	-	0.150	Continuir	
		Subtotal	2.366	-		-		-		-		-	-	2.366	-	
Management Servic	es (\$ in M	lillions)		FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO						
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To	Total Cost	Target Value of Contrac	
Program Management Support	C/CPAF	Miscellaneous : VARIOUS	3.021	-		-		0.378	Nov 2015	-		0.378	Continuing	Continuing	Continuir	
SBIR Assessment (Cong Add)	WR	NSWC/DD : DAHLGREN, VA	4.748	-		-		0.134	Nov 2015	-		0.134	-	4.882	Continuir	
DAWDF	TBD	TBD : TBD	0.021	-		-		-		-		-	-	0.021	Continuir	
		Subtotal	7.790	-		-		0.512		-		0.512	-	-	-	
			Prior Years	FY 2	2014				2016 Ise		2016 CO	FY 2016 Total	Cost To	Total Cost	Target Value of Contrac	
		Project Cost Totals	62.573	1.510		1.639		1.636		_		1.636			_	

PE 0603382N: Advanced Combat Systems Tech Navy

xhibit R-4, RDT&E Schedule Profile: PB 2010	3 Navy																					Da	te: F	eb	rua	ry 2	2015	,		
Appropriation/Budget Activity 1319 / 4														Number/Name) dv Combat System Technology																
		FY 2014 FY 201					015	5 FY 2016						FY 2017			FY 2		2018			FY 2019			FY 2			2020		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	4	1	2	3	4	
Proj 0324																														
Incorporate OA Principles in Acquisition Strategies and Contracts																				I										
Change Culture through OA Education, Outreach and Training																														
Conduct Program Assessments																														
Adapt ONR Technologies																														
Publish Contract Guidebook Update																														
Host Contracting/Industry Symposium																														
Deliver Report to Congress																														
Host OA Lead Council Meeting																														

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy	Date: February 2015				
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Schedule Details

	Sta	art	End			
Events by Sub Project	Quarter	Year	Quarter	Year		
Proj 0324						
Incorporate OA Principles in Acquisition Strategies and Contracts	1	2014	3	2018		
Change Culture through OA Education, Outreach and Training	1	2014	4	2018		
Conduct Program Assessments	2	2014	2	2018		
Adapt ONR Technologies	1	2014	3	2018		
Publish Contract Guidebook Update	3	2014	3	2018		
Host Contracting/Industry Symposium	4	2014	4	2018		
Deliver Report to Congress	1	2014	4	2018		
Host OA Lead Council Meeting	1	2014	4	2018		