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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Office of the Secretary Of Defense **Date:** February 2015

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0603923D8Z I <i>Coalition Warfare</i>							
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	21.948	9.597	10.125	10.350	-	10.350	10.432	10.910	11.204	11.353	Continuing	Continuing
P923: <i>Coalition Warfare</i>	21.948	9.597	10.125	10.350	-	10.350	10.432	10.910	11.204	11.353	Continuing	Continuing

A. Mission Description and Budget Item Justification

Current U.S. military strategy and the global security environment make coalition warfare and multinational operations fundamental features of the U.S. national security strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. U.S. strategic guidance confirms that coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.

The Coalition Warfare Program (CWP) responds to this guidance by supporting DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. CWP supplements a U.S. Government proponent's funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds up the development and delivery of technical solutions to the warfighter. In its fourteen-year history, CWP has leveraged \$4 of foreign partner funding and \$3 of other U.S. Government funding for every \$1 CWP has invested in cooperative projects.

CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	9.827	10.139	10.420	-	10.420
Current President's Budget	9.597	10.125	10.350	-	10.350
Total Adjustments	-0.230	-0.014	-0.070	-	-0.070
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.005	-0.014			
• SBIR/STTR Transfer	-0.225	-			
• Baseline program adjustments	-	-	-0.070	-	-0.070

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<u>Change Summary Explanation</u> Program baseline reduced minimally to fund other department priorities.		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense										Date: February 2015		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603923D8Z / <i>Coalition Warfare</i>				Project (Number/Name) P923 / <i>Coalition Warfare</i>			
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
P923: <i>Coalition Warfare</i>	21.948	9.597	10.125	10.350	-	10.350	10.432	10.910	11.204	11.353	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Current U.S. military strategy and the global security environment make coalition warfare and multinational operations fundamental features of the U.S. national security strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. U.S. strategic guidance confirms that coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.

The Coalition Warfare Program (CWP) responds to this guidance by supporting DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. CWP supplements a U.S. Government proponent's funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds up the development and delivery of technical solutions to the warfighter. In its thirteen-year history, CWP has leveraged \$4 of foreign partner funding for every \$1 of U.S. Government investment, and \$3 of other U.S. Government funding for every \$1 CWP has invested in cooperative projects.

CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016
Title: Previous Year Continuing Projects	8.233	4.703	0.668
Description: Program provided additional funding to projects that began in earlier selection cycles.			
FY 2014 Accomplishments: Continued efforts that will result in delivery of: a new fast running model for blast propagation through failing blast doors in tunnels; a micro-scale vibrational energy harvester capable of operating at low frequency; new body armor design with enhanced protection; and a GPS anti-jam antenna system for submarines.			
FY 2015 Plans: Continuation of efforts that will result in delivery of: improved radar modeling capability; software tool to improve real-time communications connectivity in urban settings; and GPS anti-jam algorithms for operation in a fast rotor environment.			
FY 2016 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Completion of efforts that will improve submarine force network interoperability, deliver a prototype for standoff detection of explosives, and optimize algorithms and provide numerical tools used for design and performance assessment of multi-hull naval ships.					
Title: Allied Munitions Detection - Underwater Initiative Description: Bilateral US Navy project to evaluate, analyze and advance technologies and techniques for the detection, classification and mapping of bottom and buried underwater munitions and mines for the development of an automated unmanned and autonomous underwater survey system. FY 2015 Plans: Data analysis, algorithm improvement, and sea trial. FY 2016 Plans: Data analysis from first sea trial, system analysis and improvements, and sea trial.			-	0.607	0.773
Title: Disposable Chem-Bio Identification Technology Description: Bilateral US Army project to develop, characterize, and prototype a low-cost, highly accurate chemical-biological identification and diagnostics capability using a novel commercial paper-based sensing technology. FY 2015 Plans: Develop signature library and initial color-change algorithm; develop and procure materials for testing. FY 2016 Plans: Continue to develop color-change algorithm(s); integrate chemical algorithm with biological algorithm; engineer, design, and manufacture/integrate prototype; develop prototype software; evaluate prototype in an operationally realistic environment and in the field; publish final reports and technical data package.			-	0.136	0.374
Title: Enhanced Ultraviolet Photodiodes for Biological Aerosol Sensors Description: US Army project to develop and test enhanced UV photodiode modules in US and ROK biological aerosol sensors. FY 2014 Accomplishments: Consultated on design and fabrication of silicon photodiode . FY 2015 Plans: Design, fabrication, and testing of photodiodes. FY 2016 Plans:			0.050	0.404	0.323

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Refinement and additional testing of photodiodes.					
Title: Enhanced Unmanned Underwater Mine Neutralization Capability Description: Bilateral US Navy project to develop and test autonomous mine neutralization behaviors, target (mine) recognition and image enhancement in reduced visibility conditions, in order to enable autonomous mine neutralization. FY 2015 Plans: Develop target recognition capabilities and port algorithms to test bed. FY 2016 Plans: Develop image enhancement capabilities, integrate components, and conduct joint trial.			-	0.320	0.320
Title: Hypertemporal Imaging (HTI) Field Trials for Dim Target Detection Description: Bilateral US Air Force project to perform realistic trials of a novel target detection technology that would lead to the production of a HTI Technology concept of operations in support of missile warning and battlespace awareness. FY 2015 Plans: Hardware purchase and test site scouting. FY 2016 Plans: Hardware purchase and field testing.			-	0.480	0.470
Title: Eye Safer Laser for Directed Energy Description: Bilateral US Navy project to develop eye safer lasers for directed energy laser weapons. FY 2015 Plans: Design and fabrication of laser fiber structure. FY 2016 Plans: Design optimization and fiber laser testing.			-	0.650	0.850
Title: Microbial Fuel Cells (MFC) as Underwater Power Enablers for Sensors Description: Bilateral US Navy project to develop an MFC system for increased underwater power to sensors in marine environments. FY 2015 Plans: Incorporate materials and conduct laboratory demonstration. FY 2016 Plans:			-	0.200	0.530

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Evaluate system and conduct prototype operationally relevant testing.					
Title: Monitoring and Controlling Multiple Assets within Complex Environments Description: Bilateral US Navy project to develop human-machine interface software prototypes and specifications to enable safe and effective unmanned air system operations. FY 2015 Plans: Scenario development and evaluation of interface alternatives FY 2016 Plans: Modify and test prototypes.			-	0.400	0.350
Title: Multispectral Augmented Visually Enhanced Reality Imaging Capability Description: Bilateral US Special Operations Command project to research, develop, and test a multispectral capability for enhanced situational awareness and long-range target acquisition. FY 2014 Accomplishments: Performed analysis and technology assessment. FY 2015 Plans: Hardware development. FY 2016 Plans: Operational testing.			0.203	0.247	0.323
Title: Non-Lethal Maritime Vessel Disablement Description: Bilateral US Navy project to develop the materials and mechanisms for a distinct tactical delivery system of non-lethal solutions for maritime vessel stopping/disabling. FY 2014 Accomplishments: Test support. FY 2015 Plans: Material refinement and large scale trials. FY 2016 Plans: Prototype refinement and testing.			0.070	0.456	0.457
Title: Periscope Vulnerability and Visualization Tactical Decision Aid			-	0.400	0.420

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Description: Bilateral US Navy project to produce a modern submarine vulnerability assessment tool.					
FY 2015 Plans: Conduct technical information exchanges and develop modeling approach.					
FY 2016 Plans: Demonstrate and refine software.					
Title: Project Selections			-	-	3.421
Description: Program will conduct competitive nomination process to identify new projects.					
FY 2016 Plans: Projects selected based on COCOM, Service, Joint Staff, OSD, and DoD Agency priorities and requirements.					
Title: Coalition Warfare Program (CWP) Support			0.521	0.591	0.541
Description: Program funds contractors to support CWP program management, which includes: ensuring CWP projects are consistent with the policies and principles articulated in Department of Defense directives and regulations; monitoring project progress toward goals and objectives to include tracking project budget execution; providing assessments of program status and risk to higher authorities; briefing and providing recommendations to the Director, International Cooperation concerning new and continuing CWP projects; supporting periodic meetings to foster international cooperation and improve U.S. interoperability with foreign partners; supporting CWP proposal selection process and coordinating financial activities at the OUSD(AT&L) level; briefing program stakeholders on the status of CWP projects and interoperability initiatives; educating Combatant Command, Service, Agency, and OSD personnel about the CWP and the opportunity to improve coalition interoperability.					
FY 2014 Accomplishments: Contractor provided management support of the CWP, attended RDT&E meetings and events, and monitored and managed ongoing projects' technical and financial performance.					
FY 2015 Plans: Contractor provides management support of the CWP, to include evaluating proposals for FY16 funding, attends RDT&E meetings and events, and monitors and manages projects' technical and financial performance.					
FY 2016 Plans: Contractor provides management support of the CWP, to include evaluating proposals for FY17 funding, attends RDT&E meetings and events, and monitors and manages projects' technical and financial performance.					
Title: Interoperability and Collaboration Initiatives			0.520	0.531	0.530

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015
Description: Program provides funds in support of new or planned acquisition programs with the aim of 1) promoting coalition interoperability early in the requirements or technical development phases, 2) harmonizing common goals between U.S. and foreign partners, 3) improving management of collaborative efforts. Funds support workshops, risk reduction efforts, standards development, architecture analysis, and information management initiatives. FY 2014 Accomplishments: Program funded efforts aimed at building partnerships, improving U.S. interoperability with foreign partners, and improving collaborative project processes. FY 2015 Plans: Program funds efforts aimed at building partnerships, improving U.S. interoperability with foreign partners and improving collaborative project processes. FY 2016 Plans: Program will fund efforts aimed at building partnerships, improving U.S. interoperability with foreign partners and improving collaborative project processes.			
Accomplishments/Planned Programs Subtotals		9.597	10.125
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
The Combatant Commands, Services, Defense Agencies, and the Office of the Secretary of Defense nominate candidate projects on an annual basis. CWP provides selected projects up to three years of funding. The Program selects projects that address DoD priorities and meet the needs and requirements specified by the Joint Staff and the Combatant Commanders. Projects have equitable contributions from international partners, strong potential for transition, and contribute to allied interoperability and/or meet a user need.			
E. Performance Metrics			
After successful completion of the competitive nomination process, initial project funding is dependent on receipt of project documentation, which includes financial information, project plan, description of project team, etc. Continued project funding is dependent on compliance with CWP requirements, which include: adequate progress toward each project's stated goals, timely reporting on financial status and project activities, provision of updated project plans and charts, and progress towards transition goals.			

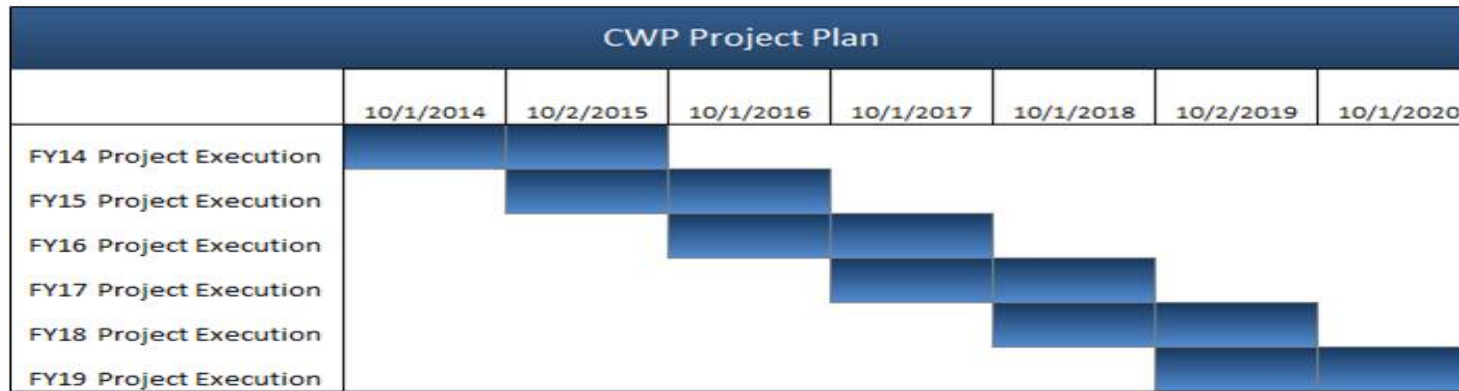
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Office of the Secretary Of Defense													Date: February 2015		
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 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 Contract
Coalition Warfare Program Project Product Development Costs	Various	Various : Various	14.268	6.536		6.677		3.913		-		3.913	-	-	-
Subtotal			14.268	6.536		6.677		3.913		-		3.913	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 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 Contract
Coalition Warfare Program Project Test and Evaluation Costs	Various	Various : Various	4.610	1.353		1.938		2.405		-		2.405	-	-	-
Subtotal			4.610	1.353		1.938		2.405		-		2.405	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 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 Contract
Coalition Warfare Program Project Management Services Costs	Various	Various : Various	3.070	1.708		1.510		4.032		-		4.032	-	-	-
Subtotal			3.070	1.708		1.510		4.032		-		4.032	-	-	-
			Prior Years	FY 2014	FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			21.948	9.597	10.125		10.350		-		10.350	-	-	-	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Office of the Secretary Of Defense	Date: February 2015
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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Office of the Secretary Of Defense	Date: February 2015
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
FY14 CWP Project Execution	1	2014	4	2015
FY15 CWP Project Execution	1	2015	4	2016
FY16 CWP Project Execution	1	2016	4	2017
FY17 CWP Project Execution	1	2017	4	2018
FY18 CWP Project Execution	1	2018	4	2019
FY19 CWP Project Execution	1	2019	4	2020