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Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy **DATE:** February 2012

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				PE 0308601N: <i>Modeling & Simulation Support</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	7.963	8.292	5.908	-	5.908	5.503	5.489	5.542	5.766	Continuing	Continuing
2222: <i>Modeling & Simulation</i>	7.963	8.292	5.908	-	5.908	5.503	5.489	5.542	5.766	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element addresses projects under the Navy Modeling and Simulation (M&S) Office. It supports technical and management initiatives directed by Congress, Department of Defense (DOD), Secretary of the Navy (SECNAV), and Chief of Naval Operations (CNO) with the aim of bringing organization and focus to the development and use of M&S throughout the Navy and DoD. It provides a central agency for the formulation and implementation of policy and guidance in M&S, and represents Navy interests in Joint and other agency initiatives. It funds efforts to define and coordinate the corporate Navy M&S policy and guidance to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DOD. Efforts are organized around four product areas: (1) Engineering Studies and Analysis: identifies and measures the relevance of existing and emerging standards, technologies and services necessary to guide Navy M&S use; (2) Products and Services: promotes the policy, standards and technologies necessary to guide more efficient development and use of M&S across the Navy, including development and management of the Navy Modeling and Simulation Information Service (NMSIS); (3) M&S Quality Assurance Program: establishes and manages a disciplined process of model Verification, Validation and Accreditation (VV&A); and (4) Simulation Experiments: supports M&S use in Navy exercises and experiments across a wide variety of warfighting and supporting communities. Specifically, Simulation Experiments integrate appropriate models and simulations into Fleet exercises to test, validate and evaluate for possible transition to operationally relevant M&S products in support of Navy operations, training, acquisition, analysis and assessment.

B. Program Change Summary (\$ in Millions)	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	8.158	8.292	8.438	-	8.438
Current President's Budget	7.963	8.292	5.908	-	5.908
Total Adjustments	-0.195	-	-2.530	-	-2.530
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.154	-			
• Program Adjustments	-	-	-2.530	-	-2.530
• Congressional General Reductions Adjustments	-0.041	-	-	-	-

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<u>Change Summary Explanation</u> Technical: Not applicable. Schedule: Not applicable.		

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Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy								DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0308601N: Modeling & Simulation Support				PROJECT 2222: Modeling & Simulation			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2222: Modeling & Simulation	7.963	8.292	5.908	-	5.908	5.503	5.489	5.542	5.766	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification											
This project addresses critical coordination of Navy M&S efforts, integrates individual programs into a coherent whole, promotes reuse of resources, and aligns Navy efforts with Joint programs. It develops and maintains a comprehensive repository of models, simulations and authoritative data to support broad-based Navy requirements. It promotes reusability through the Quality Assurance process for models, simulations and data, and enhances interoperability by coordinating and reviewing Navy's transition to DoD-mandated standards for distributed simulations. The project participates in Fleet exercise experiments, distributed simulations and demonstrations such as Limited Objective Experiments (LOE), Virtual at Sea Training (VAST), and Virtual Missile Range (VMR).											
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2011	FY 2012	FY 2013	
Title: ENGINEERING STUDIES AND ANALYSIS								3.775	3.885	3.474	
								0	0	0	
Description: This activity conducts engineering studies and analyses aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy M&S, and investigate Service-unique requirements for standards or guidance. Individual efforts focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. This activity develops methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across the Navy. This activity also provides an M&S degree program through the Naval Postgraduate School, Modeling Virtual Environments and Simulation (MOVES) curriculum.								Articles:			
FY 2011 Accomplishments:											
- Continued to work with the MOVES Institute and the MOVES degree program to provide military relevant theses topics for research. Anticipate 15 Masters Degrees (8 Navy/Marine) and two Ph.D. Degrees (0 Navy/Marine).											
- Continued to analyze Navy models and simulations for enterprise level interoperability and reuse gaps. Established a plan to mitigate gaps identified through the employment of structural metadata and modular software methodologies and standards.											
- Continued to develop the M&S interoperability Initiative which is a draft methodology and standards for a technical framework to improve tractability, interoperability, and reuse for the development of future models and simulations. Demonstrated a capability to exchange M&S Structural data with architectural data.											
FY 2012 Plans:											

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012
<ul style="list-style-type: none"> - Establish interface standards and requirements for the virtual environment in order to support interoperability with external M&S applications and to promote rapid development through a common understanding of the engineering trade space. - Develop Irregular Warfare (IW) modeling techniques to support training, experimentation, inelligence, and operational analysis users. These techniques will also be used to elucidate characteristics and limitations of IW data. - Continue other FY-11 efforts. <p>FY 2013 Plans: Continue all efforts of FY-12.</p>			
Title: PRODUCT AND SERVICES		1.768	1.786
Articles:		0	0
<p>Description: This activity supports development of common services, tools, databases and standards to ensure the integration and connectivity of M&S products employed in Naval assessments, in training and acquisition, and among operational communities. It manages and maintains the Navy M&S Information System (NMSIS), as a central M&S information resource to support informed M&S investment decision making across Navy. It provides essential planning and coordination of M&S efforts with other Services, the Office of Secretary of Defense (OSD), the Joint Staff, and other agencies to develop policies and procedures necessary for M&S visibility and potential reuse across DoD. It provides updates to the DoD Enterprise Catalog, M&S Master Plan, and M&S Investment Strategy.</p> <p>FY 2011 Accomplishments:</p> <ul style="list-style-type: none"> - Continued to promote and enhance state-of-practice and technology within the Navy M&S community. - Continued the development, servicing and use of NMSIS as directed under applicable DoD Directives, SECNAVINST, and OPNAVINST. - Appointed Chairchair of the NATO M&S Data Visibility effort, ET-100 M&S Resource Discovery. ET-100 is the technical activity for developing discoverable metadata at the NATO level and includes participants from France, Germany, Turkey, and Canada. - As part of DoD M&S Coordination Office funded M&S Alliance Cooperation efforts successfully arranged a memorandum of understanding (MOU) between DISA and the Korean military which effectively allows sharing of M&S Metadata through DISA's Net-Centric Enterprise Services (NCES). - DoDD 8320.02-G, Guidance for Implementing Net-Centric Data Sharing, April 12, 2006 has been updated to 8320.02-M to support a more bottom-up versus top-down approach to making data discoverable. - Published the Navy M&S Resource Registry (MSRR) to the NCES Enterprise Catalog. - Established an M&S Forum across NAVY SYSCOMs to coordinate, advise, inform, advocate, and implement M&S plans, strategies, goals, objectives and activities across the M&S acquisition community. - Delivered ASN(RDA) M&S Road Map document Components, Structure, and Development Approach. 		1.833	0

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012
- Provided input on DoD / M&S CO Products including: Corporate and Crosscutting Business Plan (and Objectives), Net-Centric Environment Pilot Project Report, and Report on DoD Joint Wargaming Simulation Management.			
FY 2012 Plans: Continue all efforts of FY-2011			
FY 2013 Plans: Continue all efforts of FY-2012			
Title: M&S QUALITY ASSURANCE PROGRAM		0.426	0.591
Articles:		0	0
Description: This activity implements and manages the Modeling and Simulation (M&S) Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. It reviews both new and legacy M&S VV&A plans and reports, and develops and maintains the Naval M&S VV&A repository. It establishes and implements a VV&A training curriculum for developers and accreditors.			
FY 2011 Accomplishments: - Responded to VV&A Help Desk inquiries. - Provided VV&A information, advice, and assistance which included supported to the Assistant Secretary of the Navy (Energy, Installations and Environment) for VV&A of the Navy Acoustic Effects Model (NAEMO). - Collected VV&A documents for archiving, discovery, and sharing. - Drafted updates to SECNAVINST 5200.40 to comply with DoD Instruction 5000.61. - Chaired the DoD Acquisition M&S Working Group's VV&A Subcommittee - Researched M&S Standards issues and represented Navy in votes on NATO Standard Agreements and other M&S documents - Refined Draft SECNAVINSTs on M&S VV&A (5200.40A) and M&S Management(5200.38A)			
FY 2012 Plans: - Complete the update of, staff, and promulgate SECNAVINST 5200.40 - Update the DON M&S VV&A Implementation Handbook IAW updated SECNAVINST 5200.40 - Continue other FY11 efforts.			
FY 2013 Plans: - Continue other FY12 efforts.			
Title: SIMULATION EXPERIMENTS		1.994	2.030
Articles:		0	0
			-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2011	FY 2012
<p>Description: This activity supports Fleet exercises and experiments through the application of distributed simulations across a wide variety of warfighting and supporting communities. Specifically, it develops and integrates appropriate M&S into Fleet Synthetic Training (FST), and develops simulation efforts to test and evolve the standards for models, interfaces, and data. It supports development of tools necessary to enable the seamless access and use of operationally relevant M&S products to support Navy training, warfare assessments and acquisition requirements.</p> <p>FY 2011 Accomplishments:</p> <ul style="list-style-type: none"> - Continued development of Naval capabilities in the USAF/USN Strategic Analysis tool Synthetic Theater Operations Research Model (STORM). Integrate a set of Electronic Warfare (EW) elements into the model by identifying, scoping and developing conceptual models and software designs to represent these elements at the Joint Campaign level. Design models of EW elements that are supportable with available data and appropriate for the campaign and analytic questions of interest. Document and scope the EW representations through coordination with the STORM Configuration Control Board (CCB). - Continued to define enhancements of USMC STORM to make the model representative of the full-spectrum capabilities of the Joint force by incorporating COSAGE/Attrition Calibration (ATCAL) enhancements; this dynamic scaling enhancement offers a significant fidelity increase for the improved adjudication of ground force engagements occurring at regiment- or battalion-level. - Continued to develop of a "common software package" for Navy Training Interoperability. This software package reduces simulation interoperability complexity to the applicable distributed Navy training standard / architecture by providing a common interface across multiple simulations - Continued to develop a "Navy training test harness" which allows their capabilities and interoperability with Navy Continuous Training Environment (NCTE) and other Navy training standards as part of their development and delivery life cycles. <p>FY 2012 Plans:</p> <ul style="list-style-type: none"> - Continue integrating an additional set of EW elements into STORM - Continue other FY11 efforts. 			
Accomplishments/Planned Programs Subtotals		7.963	8.292
C. Other Program Funding Summary (\$ in Millions) N/A			
D. Acquisition Strategy This is a non-ACAT program. The focus of the Navy Modeling and Simulation (M&S) Office is to facilitate and enable the efficient use of M&S by minimizing duplication of M&S efforts and maximize the reuse of M&S and data.			

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E. Performance Metrics <p>This program supports ongoing efforts to define, develop and utilize M&S technologies, standards and techniques in DoN and Joint programs across a wide range of disciplines and technical arenas. As such, performance metrics are specific to individual projects initiated under this program element. Representative examples of performance criteria for M&S support include the following: VV&A of deployed M&S systems to support Fleet and Force missions and assessments; degree of composability and adaptability of system architectures employed in M&S systems; ability of M&S systems to replicate and permit recreation of force or system interactions that otherwise would be performed by more labor-intensive or expensive personnel, forces or elements; degree to which M&S frameworks would permit rapid integration and employment of analytic capabilities for the analysis and documentation of warfighter missions, weapons systems or Tactics, Techniques and Procedures (TT&P); and ability of a specific M&S technology or technique to meet the requirements specified in an individual project supported by this program.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy										DATE: February 2012			
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Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MOVES	WR	Naval Postgraduate School:Monterey, CA	0.822	0.847	Oct 2011	0.872	Oct 2012	-		0.872	Continuing	Continuing	Continuing
DON Mission Level Model Gap Analysis	WR	NAVAIR:Pax River, MD	0.960	-		-		-		-	1.527	2.487	
M&S Interoperability Initiative	WR	SPAWAR:San Diego, CA	0.650	0.850	Oct 2011	-	Oct 2012	-		-	0.000	1.500	
M&S Interoperability Initiative	WR	NAVAIR:Pax River, MD	0.950	0.850	Oct 2011	-	Oct 2012	-		-	0.000	1.800	
Standard Interfaces for Rapid Development	WR	NAVAIR:Pax River, MD	0.620	0.620	Oct 2011	0.920	Oct 2012	-		0.920	0.000	2.160	
Converting IW Data into Models	WR	MCCDC:GRP W	-	-	Oct 2011	-		-		-	0.000	0.000	
Navy Training Test Harness	WR	ONR/NAVAIR:TSD	0.375	-		-		-		-	0.000	0.375	
Surface Combat Tactical Team Trainer	WR	NAVAIR:TSD	-	0.680	Oct 2011	-		-		-	0.000	0.680	
AIMS EO/IR Sensor Simulation	WR	NAVAIR:TSD	-	-		-	Oct 2012	-		-	0.000	0.000	
Navy Future Campaign Model	WR	OPNAV:GRP W	0.500	0.500	Oct 2011	0.230	Oct 2012	-		0.230	0.000	1.230	
Navy M&S Mission Suite	WR	OPNAV/NSWC:Carderock, MD	-	-	Oct 2011	-	Oct 2012	-		-	0.000	0.000	
USMC STORM	WR	MCCDC:GRP W	0.250	-		-		-		-	0.000	0.250	
Community Projects	WR	SPAWAR:Charleston, SC	0.124	0.147	Oct 2011	-	Oct 2012	-		-	0.000	0.271	
Subtotal			5.251	4.494		2.022		-		2.022			
Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RDA IDS (#2)	WR	SPAWAR:Charleston, SC	-	-	Oct 2011	-	Oct 2012	-		-	0.000	0.000	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy										DATE: February 2012			
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Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RDA IDS (#1&3)	WR	SPAWAR:Charleston, SC	0.195	0.447	Oct 2011	0.461	Oct 2012	-		0.461	0.000	1.103	
RDA POC	WR	NAVAIR:Pax River, MD	0.108	0.111	Oct 2011	0.114	Oct 2012	-		0.114	0.000	0.333	
Training IDS (#1)	WR	SPAWAR:Charleston, SC	-	0.267	Oct 2011	0.274	Oct 2012	-		0.274	0.000	0.541	
Training IDS (#3)	WR	SPAWAR:Charleston, SC	0.222	0.229	Oct 2011	0.235	Oct 2012	-		0.235	0.000	0.686	
Analysis IDS	WR	SPAWAR:Charleston, SC	0.198	0.505	Oct 2011	0.520	Oct 2012	-		0.520	0.000	1.223	
IDS Training and Coordination	WR	SPAWAR:Charleston, SC	0.028	0.029	Oct 2011	0.030	Oct 2012	-		0.030	0.000	0.087	
USMC IDS	WR	MCCDC:Not Specified	0.138	0.142	Oct 2011	0.146	Oct 2012	-		0.146	0.000	0.426	
Subtotal			0.889	1.730		1.780		-		1.780	0.000	4.399	
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VV&A Standards & Support	WR	SPAWAR:Charleston, SC	0.253	0.370	Oct 2011	0.388	Oct 2012	-		0.388	0.000	1.011	
Plans and Policies (M&S)	WR	SPAWAR:Charleston, SC	0.063	0.067	Oct 2011	0.060	Oct 2012	-		0.060	0.000	0.190	
Subtotal			0.316	0.437		0.448		-		0.448	0.000	1.201	
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
NMSO Director	WR	SPAWAR:Charleston, SC	0.259	0.261	Oct 2011	0.275	Oct 2012	-		0.275	0.000	0.795	
NMSO Data Archiving Effort	WR	NAVAIR:Pax River, MD	0.159	0.124	Oct 2011	0.069	Oct 2012	-		0.069	0.000	0.352	

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Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DREN Connectivity	WR	SPAWAR:Charleston, SC	0.008	0.008	Oct 2011	0.008	Oct 2012	-		0.008	0.000	0.024	
NMSIS & Data Lead	WR	SPAWAR:Charleston, SC	0.152	0.153	Oct 2011	0.189	Oct 2012	-		0.189	0.000	0.494	
NMSIS Web Presence	WR	SPAWAR:Charleston, SC	0.120	0.258	Oct 2011	0.266	Oct 2012	-		0.266	0.000	0.644	
Data Assistant	WR	SPAWAR:Charleston, SC	0.110	0.229	Oct 2011	0.236	Oct 2012	-		0.236	0.000	0.575	
Navy M&S Policy and Plans	C/CPFF	VisiTech:Alexandria, VA	0.324	0.223	Oct 2011	0.229	Oct 2012	-		0.229	0.000	0.776	
RDA M&S Forum	WR	NAVAIR:Pax River, MD	0.375	0.375	Oct 2011	0.386	Oct 2012	-		0.386	0.000	1.136	
Subtotal			1.507	1.631		1.658		-		1.658	0.000	4.796	
			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			7.963	8.292		5.908		-		5.908			
Remarks													