Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	110.904	92.864	98.261	0.000	98.261	92.820	62.799	63.199	60.430	Continuing	Continuing
2915: *Warfighter Sustainment Adv Tech*	85.613	85.853	98.261	0.000	98.261	92.820	62.799	63.199	60.430	Continuing	Continuing
9999: *Congressional Adds*	25.291	7.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	112.638

A. Mission Description and Budget Item Justification

The efforts described in this Program Element (PE) are based on investment directions as defined in the Naval Science and Technology (S&T) Strategic Plan approved by the S&T Corporate Board (Feb 2009). This strategy is based on needs and capabilities from Navy and Marine Corps guidance and input from the Naval Research Enterprise (NRE) stakeholders (including the Naval enterprises, the combatant commands, the Chief of Naval Operations (CNO), and Headquarters Marine Corps). It provides the vision and key objectives for the essential S&T efforts that will enable the continued supremacy of U.S. Naval forces in the 21st century. The Strategy focuses and aligns Naval S&T with Naval missions and future capability needs that address the complex challenges presented by both rising peer competitors and irregular/asymmetric warfare.

Warfighter Sustainment Advanced Technology supports: Manpower and Personnel, Training, and Readiness; and the Future Joint Warfighting Capabilities identified by the Joint Chiefs of Staff. It supports Future Naval Capabilities (FNC) Programs in Airframe/Ship Corrosion; Turbine Engine Technologies; Littoral Combat; Sea Base Planning, Operations and Logistics; and Sea Base Mobility and Interfaces. It develops technologies that enable the Navy to better recruit, select, classify, assign, and manage its people; to train effectively and affordably in classroom settings, in simulated and actual environments, and while deployed; and to effect human systems design into weapon systems. Other technologies enable reduced operating costs through life-extension of legacy systems and increased efficiency of future propulsion systems and improved diagnostic tools.

Within the Naval Transformation Roadmap, this investment supports the achievement of all the transformational capabilities of Sea Warrior and the transformational capabilities of: Ship to Objective Maneuver and Time Sensitive Strike required by Sea Strike; Littoral Sea Control and Anti-Sub Warfare required by Sea Shield; Compressed Deployment and Employment Times and Enhanced Sea-Borne Positioning of Assets required by Sea Basing; and Battlespace Integration required by FORCEnet.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603236N: *Warfighter Sustainment Advd Tech*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	137.458	86.239	0.000	0.000	0.000
Current President's Budget	110.904	92.864	98.261	0.000	98.261
Total Adjustments	-26.554	6.625	98.261	0.000	98.261
• Congressional General Reductions		-0.386			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.029			
• Congressional Adds		7.040			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-23.529	0.000			
• SBIR/STTR Transfer	-3.025	0.000			
• Program Adjustments	0.000	0.000	98.261	0.000	98.261

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Intelligent Retrieval of Imagery*	0.000	1.992
Congressional Add: *Marine Corps Cultural and Language Training Platform*	0.000	0.637
Congressional Add: *Nanofluidic Lubricants for Increased Fuel Efficiency in Heavy Duty Vehicles*	0.000	1.195
Congressional Add: *Defense Modernization and Sustainment Initiative*	4.986	0.000
Congressional Add: *Intelligent Work Management for Class Squadrons (C*	1.995	0.000
Congressional Add: *Environmentally-Sealed, Ruggedized Avionics Displ*	3.988	3.187
Congressional Add: *Chafing Protection System*	1.197	0.000
Congressional Add: *Desktop Virtual Trainer Follow-On*	2.394	0.000
Congressional Add: *Domain Specific Knowledge Capture Interface*	1.356	0.000
Congressional Add: *Predicting Bio-Agent Threat Profiles using Automat*	1.596	0.000
Congressional Add: *Sea Base Mobility and Interfaces*	4.986	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603236N: *Warfighter Sustainment Advd Tech*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *System for Intelligent Task Assignment & Readiness*	0.798	0.000
Congressional Add: *Validation of Lift Fan Engine Systems*	1.995	0.000
Congressional Add Subtotals for Project: 9999	25.291	7.011
Congressional Add Totals for all Projects	25.291	7.011

Change Summary Explanation

Technical: FY 2009 and out reflects a correction to the Seabasing INP funding profile to be consistent with the changes in complexity and cost associated with going from preliminary design and model development through prototype fabrication.

Schedule:

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2915: *Warfighter Sustainment Adv Tech*	85.613	85.853	98.261	0.000	98.261	92.820	62.799	63.199	60.430	Continuing	Continuing

A. Mission Description and Budget Item Justification

Warfighter Sustainment Advanced Technology supports Manpower and Personnel, Training, and Readiness; and the Future Joint Warfighting Capabilities identified by the Joint Chiefs of Staff. This project supports FNC Programs in Airframe/Ship Corrosion; Turbine Engine Technologies; Littoral Combat; Sea Base Planning, Operations and Logistics; and Sea Base Mobility and Interfaces. This project develops technologies that enable the Navy to better recruit, select, classify, assign, and manage its people; to train effectively and affordably in classroom settings, in simulated and actual environments, and while deployed; and to effect human systems integration into weapon systems. Other technologies enable reduced operating costs through life-extension of legacy systems, increased efficiency of future propulsion systems and improved diagnostic tools. Within the Naval Transformation Roadmap, this investment supports the achievement of all the transformational capabilities of Sea Warrior and the transformational capabilities of Ship to Objective Maneuver and Time Sensitive Strike required by Sea Strike; Littoral Sea Control and Anti-Submarine Warfare (ASW) required by Sea Shield; Compressed Deployment and Employment Times and Enhanced Sea-Borne Positioning of Assets required by Sea Basing; and Battlespace Integration required by FORCEnet.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AIRFRAME/SHIP CORROSION/COST REDUCTION TECHNOLOGIES	2.472	4.829	9.662	0.000	9.662
This activity includes an integrated approach for the control of the effects of external and internal corrosion in Naval weapon systems as well as cost reduction technology efforts. The work develops advanced, cost effective prevention and lifecycle management technologies. This is particularly significant to life extension for the aging fleet. The funding increase from FY 2009 to FY 2011 is due to the initiation and ramp-up of several new EC's including corrosion related signature technologies and advanced shipboard water desalination and corrosion.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Continued Nondestructive Inspection (NDI) technology for heat damage detection on composite materials. - Continued development on improved non-skid coatings. - Continued development on improved ship rudder coatings. - Continued development on high performance topside coatings - Continued development on high performance airfield pavements. - Initiated evaluation of advanced material coatings for erosion control on helicopter main rotor blade leading edges. *FY 2010 Plans:* - Continue all effort of FY 2009. - Complete evaluation of advanced materials for erosion control on helicopter main rotor blade leading edges. - Initiate down select of materials for erosion control of helicopter main rotor blade leading edges for subsystem evaluation of performance. - Initiate evaluation and correlation of materials repair technologies related to sub-system materials for erosion control on helicopter main rotor blade leading edges. *FY 2011 Base Plans:* - Continue all effort of FY 2010, less those noted as completed above. - Initiate systems testing of materials systems for erosion control on helicopter main rotor blade leading edges. - Initiate evaluation, design and demonstration of advanced ASGS (Active Shaft Grounding System) with Condition Based Maintenance (CBM) and signature control. - Initiate evaluation, design, large scale testing and demonstration of Impressed Current Cathodic Protection (ICCP) components.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Initiate evaluation, design and demonstration of dual-use ICCP and novel sensor technology for CBM and closed-loop deamping. - Initiate testing and evaluation of diagnostic models and demonstration of materials with improved barrier dielectrics. - Initiate evaluation, testing and demonstration of CBM underwater hull analysis model integrated with closed loop deamping model. - Initiate development of thermal management system(s) to arrest excessive heat fluxes and loads on amphibious ship by advanced Naval/USMC aircraft.					
FRICTION DRAG REDUCTION This activity is a collaborative effort with the Defense Advanced Research Agency (DARPA) and the Program Executive Officer for Ships (PEO Ships). The objective is to unambiguously demonstrate the performance of large-scale predictive models that incorporate sufficient physics from first-principles models on a large or full-scale ship test vehicle. FY 2009 funding profile reflects the phased completion of the Friction Drag Reduction program at the end of FY 2009. *FY 2009 Accomplishments:* - Continued design of large-scale demonstrator; modify demonstrator to install drag reduction equipment and sensors. - Continued at-sea large-scale demonstrator test. - Continued design of an optimal implementation of additive-based drag reduction technology using large-scale predictive models. - Completed large-scale flat-plate test and data reduction.	1.234	0.000	0.000	0.000	0.000
HUMAN SYSTEMS DESIGN (FORMALLY INTEGRATION)	4.538	5.996	6.521	0.000	6.521

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This effort supports the warfighter by providing enhanced capabilities by designing affordable user-centered systems that are efficient, easy to use, and provide required mission capabilities at lowest lifecycle costs. Such systems will be optimally designed for the right number and types of personnel, requiring minimum training while providing high skills retention. This field of research is paramount to the reduction in complex naval systems design, acquisition, operation, and maintenance costs and improvements in the effectiveness of operations. Congressional, DoD, and Navy policies and instructions require Navy and Marine Corps Program Managers to have a comprehensive plan for Human Systems Design in the acquisition process to optimize total system performance, minimize total ownership costs, and ensure the system is built to accommodate the characteristics of the user population that will operate, maintain, and support the systems. A strong Human Systems Design effort is required to meet these goals. The increase in funding from FY 2009 to FY 2010 supports research into mission performance optimization encompassing task centered design and advanced human performance modeling and also research into improving delivery of sensor information to displays for enhanced understanding of uncertain information. *FY 2009 Accomplishments:* - Continued research to develop and demonstrate automation and human interface technologies to support collaborative decision-making in which multiple unmanned system operators manage groups of vehicles with optimal manning. - Continued research to develop and demonstrate advanced tactical decision making technologies to integrate spatially disparate displays and reduce the reliance of crew support to achieve superior ship commanding officer and crew decision making. - Continued HSI interface display research to improve ships personnel's ability to efficiently and effectively detect, recognize, and identify noisy targets in ambiguous and uncertain dynamic environments.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continued HSI tool research, development, and application to engineering efforts to develop robust standardized set of human systems integrated specific modeling and simulation tools to assess the interaction between operators performance by system design by manning levels. - Initiated experiments to study design issues related to simultaneous control and monitoring of a multiple unmanned surface and air vehicles. Of particular importance are issues monitoring and control of multiple vehicles, planning and re-planning as environmental findings from sensors are interpreted, and safety and collision avoidance. *FY 2010 Plans:* - Continue all efforts of FY 2009. - Complete HSI interface display research to improve ships personnel's ability to efficiently and effectively detect, recognize, and identify noisy targets in ambiguous and uncertain dynamic environments. - Complete experiments to study design issues related to simultaneous control and monitoring of a multiple unmanned surface and air vehicles. - Initiate research into mission performance optimization encompassing task centered design and advanced human performance modeling for achieving the requisite manning, both in numbers and capabilities, for the complex ships and systems of the future fleet. - Initiate improving the capability to fuse imaging, electronic warfare, inorganic and acoustic sensor inputs into integrated, fused, and intuitive displays that enhance the presentation and command understanding of uncertain information. *FY 2011 Base Plans:* - Continue all efforts of FY 2010 less those noted as completed above. - Complete research to develop and demonstrate automation and human interface technologies to support collaborative decision-making in which multiple unmanned system operators manage groups of vehicles with optimal manning.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Complete research to develop and demonstrate advanced tactical decision making technologies to integrate spatially disparate displays and reduce the reliance of crew support to achieve superior ship commanding officer and crew decision making. - Initiate developments to incorporate environmental stressors impact(fatigue, motion, vibration and extreme temperatures) into systems engineering tools for the development for complex Navy systems.					
LITTORAL COMBAT	2.840	9.925	7.664	0.000	7.664
The goal of Littoral Combat is the application of technologies to enhance the ability of the Navy/ Marine Corps team to execute the Naval portion of a joint campaign in the littorals. This activity considers all the critical functions of warfighting: command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), fires, maneuver, sustainment, force protection, and training. The activity includes support to the following FNC ECs; Battlefield Power, Reduced Support Costs 1, Advanced Naval Fires Technology Spiral 1, Combatant Commander (COCOM) to Marine Combat Identification (ID), Global Information Grid (GIG)-Compliant Networking, Hostile Fire Detection and Response Spiral 2, Position-Location-Information, Reduced Cost of Operations 1, Sea Base Collaborative Command and Control, Sea Base Mobility and Interfaces, and Sea Base Integrated Operations. The increase in funding between FY 2009 and FY 2010 is due to the initial funding of FNC efforts for advanced survivability and mobility for Marine Corps, and the initiation of new FNC efforts to reduce the load of dismounted combatants. *FY 2009 Accomplishments:* - Continued development of battlefield power generation technologies lunchbox sized 500 - 1000W portable JP-8 fueled generator. - Initiated development of advanced lighter weight modular individual protective system that will provide increased flexibility and protection for the warfighter. (Concurrent effort funded by PE 0602131M and PE 0603640M).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: - Continue all efforts of FY 2009. - Continue development and transition advanced power generation technologies that enable reduction of the logistical burden on small tactical units. - Initiate development of advanced armor technologies for improved survivability and advanced suspension technologies for improved cross country mobility of Marine Corps tactical and combat vehicles.(Previous FY 2009 funding by PE 0602131M and 0603640M; concurrent funding by PE 0602131M and PE 0603640M- funding by these PEs completes development and transition). - Initiate development of technologies that will lighten the load of individual warfighters by reducing weight, improving survivability and increasing the mobility of the warfighter.(Concurrent funding provided by PE 0602236N) - Initiate research to develop technology to reduce fabrication and life cycle costs of SSN/SSGN next generation photonics mast and to improve SSN surface situational awareness through faster image acquisition rates, improve range performance under adverse weather conditions and improve autonomous detection and classification.(Concurrent funding provided by PE 0602236N). *FY 2011 Base Plans:* - Continue all efforts of FY 2010. - Continue development of individual warfighter lightweight protective system technologies that will reduce body armor weight, improve survivability and increase the mobility of the warfighter (lighten the load). - Continue development of technologies that will lighten the load of individual warfighters by reducing weight, improving survivability and increasing the mobility of the warfighter. (Concurrent funding provided by PE 0602131M and PE 0603640M - funding by these PE's completes development and transition). - Continue research to develop technology to reduce fabrication and life cycle costs of SSN/SSGN next generation photonics mast and to improve SSN surface situational awareness through faster					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
image acquisition rates, improve range performance under adverse weather conditions and improve autonomous detection and classification. (Concurrent funding provided by PE 0602236N), - Complete development and transition advanced power generation technologies that enable reduction of the logistical burden on small tactical units.					
MANPOWER AND PERSONNEL DEVELOPMENT	5.016	5.382	4.966	0.000	4.966
This activity provides Navy personnel system managers with the ability to attract and retain the right people and to place them in jobs that best use their skills, training, and experience. Application of modeling and simulation, mathematical optimization, advanced testing, statistical forecasting, information visualization, data warehousing, data cleansing, web-based knowledge management, and human performance measurement technologies enhances Fleet readiness and reduces personnel costs. *FY 2009 Accomplishments:* - Continued development and demonstration of decision support tools linked with Sea Warrior. - Continued advanced selection, classification and assessment metrics to facilitate optimal labor substitution. - Continued integration and multi-faceted decision support tools to evaluate manpower alternatives. - Continued development and demonstration of behaviorally-based predictive models. - Initiated experiments and demonstration of independent dynamic supply and demand models for Navy skill sets. - Initiated development of a prototype assessment measure of team adaptive performance. *FY 2010 Plans:* - Continue all efforts of FY 2009. *FY 2011 Base Plans:* - Continue all efforts of FY 2010.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SEA BASE MOBILITY AND INTERFACES	23.751	6.816	0.698	0.000	0.698

This activity includes support for Sea Base Mobility and Interfaces and Force Closure. This activity improves the capability for transfer of cargo between Sea Base/Logistics vessels and employment of combat ready forces over unimproved beaches during high sea states. Capabilities being developed include propulsion technologies, maneuvering technologies, and advanced hull systems technologies needed for sustained operations at high speed in high sea states. This activity further supports the Seabasing mission of transporting troops, equipment, and materials from the seabase to shore, and providing support to seaborne forces via surface distribution interfaces.

The reduction between FY 2009 and FY 2010 is due to the completion of the following FNC programs: small to large vessel at sea transfer, high speed seabase to shore connector, high rate horizontal to vertical movement. The transition opportunity for the Axial Flow Waterjet FNC Program has been changed from the Joint High Speed Ship to the Littoral Combat Ship (LCS), a new Technology Transition Agreement (TTA) has been signed. This FNC program is in Phase II where large-scale prototype waterjets will be designed and fabricated for demonstration on the LCS.
The reduction between FY 2010 and FY 2011 is due to the completion of FNC BAS-FY06-01, Sea Base Mobility and Interfaces - Specific products are High Rate Vertical/Horizontal Material Movement and Small to Large Vessel At-Sea Transfer Sea Base Connecter. FNC EPE-FY07-02, MPF (F) Force, Closure is nearing completion - Specific product is 38 MW Axial-Flow Waterjet.

FY 2009 Accomplishments:
- Completed efforts on the High Speed Sea Base to Shore Connector technology development through at-sea demonstrations of the technologies.
- Continued work for a beachable high speed craft as a Sea Base mobility interface.
- Continued technology exploration in hydrodynamic impacts and design space trade studies.
- Continued efforts on the High Speed Sea Base to Shore Connector technology development.
- Continued efforts to develop technologies for Small to Large At-Sea Vessel Interfaces.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continued the development of concepts for High Rate Horizontal and Vertical Material Movement within the Sea Base. - Continued efforts to develop a large scale Axial Flow Waterjet technology with the new transition target to Littoral Combat Ship (LCS). - Continued efforts to develop blade control technology for the heavy lift vertical air replacement platform. *FY 2010 Plans:* - Continue all efforts of FY 2009, less those noted as completed above. - Complete efforts for Small-to-Large Vessel At-Sea Transfer development via an at-sea demonstration of the technology. - Complete efforts for High Rate Vertical / Horizontal Material Mover development via a large-scale demonstration of the technology. - Initiate efforts to develop large ship fuel savings technologies for high speed materiel transport ships and follow on efforts initiated under Friction Drag Reduction refocused to other FNC efforts. *FY 2011 Base Plans:* - Continue all efforts of FY 2010, less those noted as completed above. - Complete efforts on the Axial Flow Waterjet through a large at-sea demonstration of the technology. - Initiate development of the Connectors and the Sea Base Enabling Capability consisting of Environmental Ship Motion Forecasting and Advanced Mooring System technologies.					
SEA BASE PLANNING, OPERATIONS AND LOGISTICS This activity includes support for Sea Base Integrated Operations; Surface Connector Vehicle Transfer; Automated Weapons Assembly; and Sense and Respond Logistics. Sea Basing will require more robust afloat command and control for sustainment activities. Logistics must integrate with the joint task force common operating picture, and provide awareness of mission supportability and readiness at an operational and tactical level. This activity will produce techniques and systems to support	16.786	19.584	20.063	0.000	20.063

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
automated transfer of cargo from shipboard unload/onload point to stowage spaces. This activity further supports the Seabasing mission of marshalling troops, equipment, and materials. It will improve current replenishment capabilities for transfer of cargo between Sea Base/Logistics vessels (large ship-to-ship) during high sea states, while maintaining safety of operations. Technologies include optical recognition, advanced robotics for weapons assembly, integrated data architectures, high-strength composites, wear-resistant coatings, environmental sensing, ship-motion compensation for force control-based systems, intelligent systems, and robotics. *FY 2009 Accomplishments:* - Continued efforts on the Large to Large Vessel Lift on/Lift off capability. - Continued efforts in the development of Interface Ramp Technologies for seabasing. - Continued efforts in the development of Intra-Connector Material Handling cargo securing technologies. - Continued efforts for the development of technologies supporting automated shipboard assembly of air-delivered weapons. - Continued the development of advanced technologies to provide a Sense and Respond Logistics capability. - Initiated efforts to develop Sense and Respond Logistics Information Architecture prototype. Acquisition Workforce Fund - Funded DoD Acquisition Workforce Fund. *FY 2010 Plans:* - Continue all efforts of FY 2009, less those noted as completed above. - Complete efforts for Intra-Connector Material Handling cargo securing technology development via an at-sea demonstration and transition to NAVSEA PMS 377. - Complete efforts on the Large to Large Vessel Interface Lift on/Lift off capability with post-test analyses and transition to NAVSEA PMS385.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Complete the down selection of the Sense and Respond Logistics Information Architecture. - Initiate efforts to demonstrate sensor based Sense and Respond Logistics advanced technologies. - Initiate procurement and testing of available microfiltration (MF), and ultrafiltration (UF), systems suitable for shipboard use. - Initiate investigation of seawater treatment strategies to optimize performance of MF/UF pretreatment approaches. - Initiate procurement and testing of approaches to recover energy from pressurized reverse osmosis waste brine. - Initiate efforts to select optimal reverse osmosis membranes. - Initiate development of agent based decision support and logistics planning tools. *FY 2011 Base Plans:* - Continue all efforts of FY 2010, less those noted as completed above. - Complete efforts on Interface Ramp Technologies development with demonstrations in relevant environments and transition to NAVSEA PMS385. - Complete procurement and testing of available MF, and UF, systems suitable for shipboard use. - Complete investigation of seawater treatment strategies to optimize performance of MF/UF pretreatment approaches. - Complete procurement and testing of approaches to recover energy from reverse osmosis waste brine. - Complete efforts to select optimal reverse osmosis membranes. - Complete and test first article prototypes of Sense and Respond demonstration systems; Logistics Common Operating Picture, Dexision Support Tool, Prognostics Embedded Health Management, Maco Fuel Quantity Management, Portable Fuel Quantity, Portable Fuel Quality Analysis. - Initiate down selection of desired components and begin design of pretreatment system. - Initiate down selection of desired energy recovery strategies and reverse osmosis membranes and begin design of reverse osmosis systems.					
SEA BASING	6.542	14.076	29.502	0.000	29.502

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This activity includes advancement of technologies to support the design and development of Sea Base Enabler Innovative Naval Prototypes (INP's). Areas include design and development of various Sea Basing prototypes in the areas of high speed, shallow draft and beachable connectors; and vessel to vessel interfaces. The Sea Base Enabler INP effort was initiated in FY 2006. The INP program spans from conceptual design through prototype fabrication and testing. This INP plan includes the completion of the development and at-sea testing of the Rapid Deployable Seabasing Stable Transfer Platform demonstrator; the continuation of several land based and tow-tank based model construction and testing for the Sea Base to "Over-the-Shore" Connector Transformational Craft (T-CRAFT) Prototype; and the full scale component-level development, evaluation, and testing of critical T-CRAFT technologies. The increase FY 2009 to FY 2010 is the start of phase III. The increase in FY 2010 to FY 2011 is due to the ship construction and prototype demonstration. *FY 2009 Accomplishments:* - Continued multiple INP contracts for preliminary designs in the area of a T-CRAFT and a Rapidly Deployable Seabasing Stable Transfer Platform. - Continued the down-selection of T-CRAFT designs for further development and model construction and testing. - Continued T-CRAFT model construction and testing. - Continued a second evaluation of potential new Seabasing INP efforts. - Continued planning of T-CRAFT prototype and component development.- Completed T-CRAFT model testing and evaluation. - Completed T-CRAFT model testing and evaluation. - Initiated the down-selection of T-CRAFT designs for prototype and component development. - Initiated testing and evaluation of E-CRAFT demonstrator hydrodynamic and structural characteristics.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: - Continue all efforts of FY 2009. - Complete the down-selection of T-CRAFT designs for prototype and component development. - Complete testing and evaluation of E-CRAFT demonstrator hydrodynamic and structural characteristics. - Initiate contract design and develop shipyard building plans for T-CRAFT prototype and component construction. - Initiate procurement of components and material to support T-CRAFT prototype construction. *FY 2011 Base Plans:* - Continue all efforts of FY 2010, less those noted as completed above. - Complete contract design and develop shipyard building plans for T-CRAFT prototype and component construction. - Initiate development of a detailed T-CRAFT prototype test and demonstration plan. - Initiate T-CRAFT and component construction.					
TRAINING SYSTEMS This activity improves mission effectiveness and safety by applying both simulation and instructional technology to the design of affordable education and training methods and systems. Improved training efficiency and cost-effectiveness is achieved by applying operations research, modeling and simulation, and instructional, cognitive, and computer sciences to the logistics, development, delivery, evaluation, and execution of training. The decrease in funding from FY 2009 to FY 2010 results from completion of research to enhanced human performance in networked environments. *FY 2009 Accomplishments:* - Continued research and assessment of advanced gaming technology for enhanced training.	10.946	8.603	8.453	0.000	8.453

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continued development and demonstration of technology for enhanced human performance in networked environments. - Continued developments for enabling better warfighter understanding of languages and cultures to enhance their regional expertise. - Initiated advanced technology development demonstrations of game based training for better warfighter understanding of languages and cultures to enhance their regional expertise. - Initiated experiments to validate automated performance assessment and after action reviews. - Initiated development of an Adaptive Expert System to automatically and rapidly analyze aircrew performance (1M+ flight hours annually) to detect human factors related mishap leading indicators using a new technique with anomaly and corroboration. *FY 2010 Plans:* - Continue all efforts of FY 2009. - Complete development and demonstration of technology for enhanced human performance in networked environments. - Initiate development of validated, effective, adaptive training system components to enhance individual and team training for submarine navigation and piloting skills and for surface ship Combat Information Center training. *FY 2011 Base Plans:* - Continue all efforts of FY 2010 less those noted as completed above. - Complete research and assessment of advanced gaming technology for enhanced training. - Complete experiments to validate automated performance assessment and after action reviews. - Initiate the designing, building, demonstration, and evaluation of the efficacy of the technology components/system to deliver combat/tactical profiling relevant perceptual training.					
TURBINE ENGINE TECHNOLOGY	11.488	10.642	10.732	0.000	10.732

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This activity provides integration and experimental engine testing of advanced gas turbine engine technologies to reduce their technical risk and demonstrate their readiness for transition. These technologies will enable advanced capabilities for Navy weapon systems at reduced total ownership costs. Versatile Affordable Advanced Turbine Engines (VAATE) is a DoD/DOE/NASA/Industry program to develop and demonstrate versatile, affordable, advanced engine technologies enabling for increased systems capabilities and reduced total ownership costs. The VAATE goal is 10X improvement in propulsion system affordability (capability/cost) by 2017, with interim goals of 4X by 2009 and 6X by 2013. The elements of the capability-to-cost index are increased thrust to weight; decreased specific fuel consumption; and reduced development, production, and maintenance costs for the entire integrated propulsion system. To achieve these goals, VAATE is organized into multiple product areas. Specifically for the Navy, the focus, as part of the Enterprise and Platform Enablers FNC, is on turbine engine capability enhancements for future and emerging systems. Technologies critical to Navy fighter jets are being worked, including low pressure turbine technologies for short takeoff and landing; high pressure turbine technologies for higher temperature, longer life; fan and compressor technologies for greater engine robustness and durability, and instrumentation and control technologies for greater engine state awareness and less unscheduled maintenance. Technologies being demonstrated include advanced aerodynamic, material, and structural concepts and emerging active control, prognostic health management, thermal management, aircraft subsystem integration, and information technologies. *FY 2009 Accomplishments:* - Continued VAATE Phase I: Design, component development, integration and fabrication of Phase I demonstrator engines. - Continued development of shipboard compact power conversion technologies for multi-function motor drives, bi-directional power conversion modules, and power management controllers. - Initiated design and fabrication of VAATE Phase II demonstrator engines with GE/LW and P&W. (Impact of Congressional reduction: Planning of VAATE Phase II demonstrator engine with GE/LW has been delayed until FY 2010.)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Completed reporting shipboard compact power conversion project under this Program Element (PE). These efforts transition to PE 0603123N Force Protection Advanced Technology, R2 Activity Surface Ship & Submarine Hull Mechanical and Electrical (HM&E) in FY 2009. - Completed testing of VAATE Phase I demonstrator engine with GE/LW. - Initiated component design and development for a VAATE Phase II demonstrator engine with P&W. *FY 2010 Plans:* - Continue all efforts of FY 2009 less those noted as completed above. - Complete testing of the final VAATE Phase I demonstrator engine with P&W. - Initiate planning of VAATE Phase II demonstrator engine planning with GE/LW. *FY 2011 Base Plans:* - Continue all efforts of FY 2010 less those noted as completed above.					
Accomplishments/Planned Programs Subtotals	85.613	85.853	98.261	0.000	98.261

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603640M: *USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD)*	0.000	0.809	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.809
• 0602236N: *WARFIGHTER SUSTAINMENT APPLIED RESEARCH*	27.828	27.809	37.238	0.000	37.238	35.065	19.967	11.237	3.732	0.000	162.876
	0.000	2.353	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.353

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 2915: *Warfighter Sustainment Adv Tech*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0602131N: *MARINE CORPS LANDING FORCE TECHNOLOGY*											

D. Acquisition Strategy

N/A

E. Performance Metrics

Efforts within this PE support the FNC program and are monitored at two levels. At the lowest level, each is measured against technical and financial milestones on a monthly basis. Annually, each FNC project is reviewed in depth for technical and transition performance by The Chief of Naval Research. Routine site visits to performing organizations are conducted to assess programmatic and technical progress. Most are reviewed annually or bi-annually by an independent board of visitors who assess the level and quality of the Science and Technology basis for the project.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	25.291	7.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	112.638

A. Mission Description and Budget Item Justification

Congressional Interest Items not included in other Projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Intelligent Retrieval of Imagery *FY 2010 Plans:* This effort supports Intelligent Retrieval of Imagery research.	0.000	1.992
Congressional Add: Marine Corps Cultural and Language Training Platform *FY 2010 Plans:* This effort supports Marine Corps Cultural and Language Training Platform research.	0.000	0.637
Congressional Add: Nanofluidic Lubricants for Increased Fuel Efficiency in Heavy Duty Vehicles *FY 2010 Plans:* This effort supports Nanofluidic Lubricants for Increased Fuel Efficiency in Heavy Duty Vehicles research.	0.000	1.195
Congressional Add: Defense Modernization and Sustainment Initiative	4.986	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: This effort supported the development of methods to predict and evaluate failure modes for military ground vehicles, ships and aircraft and incorporated technologies and methods to sustain or modernize this equipment to as-built or better condition.		
Congressional Add: Intelligent Work Management for Class Squadrons (C *FY 2009 Accomplishments:* This effort supported the design and development of software enhancements to the Training Readiness Assessment and Management System (TRAMS) and System for Intelligent Task Assignment for Readiness (SITAR). The effort provided two functional capabilities: 1) Implementation of predictive readiness modeling functionality using Discrete Event Simulation and 2) Enhanced work and training management scheduling capabilities to optimize workforce usage according to standards adapted to emerging and immediate fleet needs.	1.995	0.000
Congressional Add: Environmentally-Sealed, Ruggedized Avionics Displ *FY 2009 Accomplishments:* This effort supported the development of a display system, performed qualification testing, conducted platform integration tasks, performed certification testing to include thermal, vibration, pressure, and destructive test regimes that qualify the prototype for military use and establish an assembly/ integration facility. This project could reduce the manpower currently required for maintenance and cleaning of filters in vertical lift helicopters and unmanned aerial vehicles as a result of harsh combat operational environments. *FY 2010 Plans:* Continued support of Environmentally Sealed, Ruggedized Avionics Displays research.	3.988	3.187
	1.197	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603236N: *Warfighter Sustainment Advd Tech*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Chafing Protection System *FY 2009 Accomplishments:* This effort supported the development of a system for the Navy to detect and locate chafing in aircraft wires before electrical arcing occurs (with the possibility of fires developing), resulting in cost-savings and greater safety for Navy personnel.		
Congressional Add: Desktop Virtual Trainer Follow-On *FY 2009 Accomplishments:* This effort supported the production of a lookout simulation/training prototype which will train recruits in distance estimation, range estimation, verbal reporting, and the correct handling of a man overboard incident. This effort included testing and refining a game prototype and integration of the game into an existing Navy training system.	2.394	0.000
Congressional Add: Domain Specific Knowledge Capture Interface *FY 2009 Accomplishments:* This effort supported the development of Warfighter Sustainment Advanced Technology to capture and operationalize the expertise of naval personnel for use in training exercises. This user centered technology improves warfighter sustainment by providing an architectural framework to create tailored knowledge capture environments.	1.356	0.000
Congressional Add: Predicting Bio-Agent Threat Profiles using Automat *FY 2009 Accomplishments:* This effort supported the development of automated behavior analysis models designed to increase the ability to predict bio-agent threat profiles.	1.596	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603236N: *Warfighter Sustainment Advd Tech*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Sea Base Mobility and Interfaces *FY 2009 Accomplishments:* This effort supported the development of an advanced demonstrator ship capable of transforming itself between a high speed catamaran and shallow draft landing craft in order to connect the sea base with the shore.	4.986	0.000
Congressional Add: System for Intelligent Task Assignment & Readiness *FY 2009 Accomplishments:* This effort supported the development and delivery of the System for Intelligent Task Assignment for Readiness (SITAR) which applies automated scheduling technology to find optimal solutions to the complex problems associated with the assignment of maintenance job and training tasks. This is the first automated system to enable the management of fleet sailor readiness. The data available following implementation will greatly improve fleet operational training & readiness.	0.798	0.000
Congressional Add: Validation of Lift Fan Engine Systems *FY 2009 Accomplishments:* This effort supported the use of an existing test facility to measure dynamic characteristics of bearings, dampers, splines & clutches and extensively validate key bearing, damper, gear, spline, clutch, and drive shaft models used in PHM software through experimentation. This validation created fleet management tools to be developed and released for implementation.	1.995	0.000
Congressional Adds Subtotals	25.291	7.011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603236N: *Warfighter Sustainment Advd Tech*	**PROJECT** 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Interest Items not included in other Projects.