FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603235N
PROGRAM ELEMENT TITLE: COMMON PICTURE ADVANCED TECHNOLOGY

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total PE	63,076	92,401	104,578	60,722	66,710	57,357	41,110
2919 COMMUNICATIONS SECURITY	55,058	89,817	104,578	60,722	66,710	57,357	41,110
9999 CONGRESSIONAL PLUS-UPS	8,018	2,584	0	0	0	0	0

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 S&T Strategic Plan approved by the S&T Corporate Board (Jan 2007). 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 science and technology 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.

Activities and efforts in this program address the advanced technology development, test, and evaluation of a dynamic distributed common picture based on emergent technologies that will improve situational awareness across command echelons. The promise of net-centricity and potential for persistent and pervasive sensing creates greater demand for automated fusion of large volumes of multi-sensor data, techniques to coordinate deployment of multiple diverse sensors, and tailored dissemination of information to support network centric operations. The focus of this program is to refine technologies that exploit information and networking technology to ensure mission success in unpredictable warfighting environments. These missions include the Global War on Terrorism (GWOT), urban operations, and asymmetric warfare. To ensure Maritime Domain Awareness, we must be able to collect, fuse, and disseminate enormous quantities of data drawn from US joint

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forces and government agencies, international coalition partners and forces, and commercial entities. To further network centric capabilities, this project demonstrates technologies that support seamless information services afloat and ashore; collaborative decision-making among geographically dispersed warfighters; a common, consistent view of the battlespace geared to user requirements; system interoperability with coalition forces; real-time information access with quality of service guarantees; and information assurance. Technologies of interest provide access to, and automated processing of, information necessary to make decisions that lead to rapid, accurate decision-making and result in decisive, precise, and desired engagement outcomes. The payoff is access to tailored information in near real time with corresponding increases in speed of command, improved decision-making, and reduction in manpower.

The Common Picture Program supports FORCEnet, Sea Shield and Sea Strike pillars and contains investments in the following Enabling Capabilities (ECs): Secure Collaboration; Advanced Communication for FORCEnet; GIG Compliant Networking; Dynamic Target Engagement and Enhanced Sensor Capability; Next Generation Command, Control and Decision Support Services; Combatant Commander (COCOM) to Marine Combat ID; Combat ID Information Management of Coordinated Electronic Surveillance; Combat ID in the Maritime Domain to Reveal Contact Intent; Automated Control of Large Sensor Networks; and Hostile Fire Detection and Response Spiral 1.

In the context of the Naval Transformation Roadmap construct, this investment will achieve capabilities required by FORCEnet (Persistent Intelligence, Surveillance, and Reconnaissance; Time Sensitive Strike; and Sea Based Information Operations), Sea Strike (Ship-to-Objective Maneuver), and Sea Shield (Theater Air and Missile Defense).

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

FY2007 funding total includes $ 2.0 M received in GWOT supplemental.

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B. PROGRAM CHANGE SUMMARY:

	FY 2007	FY 2008	FY 2009
FY 2008/FY 2009 President's Budget Submission	65,686	40,782	22,755
Congressional Action	0	52,600	0
Congressional Undistributed Reductions/Rescissions	0	-650	0
Execution Adjustments	-1,481	0	0
Program Adjustments	-58	0	81,803
Rate Adjustments	0	0	20
SBIR Assessment	-1,071	-331	0
FY 2009 President's Budget Submission	63,076	92,401	104,578

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable.

Schedule: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

E. PERFORMANCE METRICS:
Performance metrics are discussed within the project (R2a).

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COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
2919 COMMUNICATIONS SECURITY	55,058	89,817	104,578	60,722	66,710	57,357	41,110

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Activities and efforts in this project address the advanced technology development, test, and evaluation of a dynamic distributed common picture based on emergent technologies that will improve situational awareness across command echelons. The promise of net-centricity and potential for persistent and pervasive sensing creates greater demand for automated fusion of large volumes of multi-sensor data, techniques to coordinate deployment of multiple diverse sensors, and tailored dissemination of information to support network centric operations. The focus of this program is to refine technologies that exploit information and networking technology to ensure mission success in unpredictable warfighting environments. These missions include the GWOT, urban operations, and asymmetric warfare. To ensure Maritime Domain Awareness, we must be able to collect, fuse, and disseminate enormous quantities of data drawn from US joint forces and government agencies, international coalition partners and forces, and commercial entities. To further network centric capabilities, this project demonstrates technologies that support seamless information services afloat and ashore; collaborative decision-making among geographically dispersed warfighters; a common, consistent view of the battlespace geared to user requirements; system interoperability with coalition forces; real-time information access with quality of service guarantees; and information assurance. Technologies of interest provide access to, and automated processing of, information necessary to make decisions that lead to rapid, accurate decision-making and result in decisive, precise, and desired engagement outcomes. The payoff is access to tailored information in near real time with corresponding increases in speed of command, improved decision-making, and reduction in manpower.

The Communications Security project supports FORCEnet, Sea Shield and Sea Strike pillars and contains investments in the following Enabling Capabilities (ECs): Secure Collaboration; Advanced Communication for FORCEnet; GIG Compliant Networking; Dynamic Target Engagement and Enhanced Sensor Capability; Next Generation Command, Control and Decision Support Services; COCOM to Marine Combat ID; Combat ID Information Management of Coordinated Electronic Surveillance; Combat ID in the Maritime Domain to Reveal Contact Intent; Automated Control of Large Sensor Networks; and Hostile Fire Detection and Response Spiral 1.

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In the context of the Naval Transformation Roadmap construct, this investment will achieve capabilities required by FORCEnet (Persistent Intelligence, Surveillance, and Reconnaissance (ISR); Time Sensitive Strike; and Sea Based Information Operations), Sea Strike (Ship-to-Objective Maneuver), and Sea Shield (Theater Air and Missile Defense).

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
HIGH-INTEGRITY GLOBAL POSITIONING SYSTEM (HIGPS)	0	49,682	61,200

The High-Integrity Global Positioning System (HIGPS) activity is focused on developing the technology required to demonstrate the capability of using the existing Iridium satellite constellation to enhance current GPS navigation and timing capabilities. Enhancements include improved anti-jam performance, improved accuracy of navigation and positioning, increased availability of satellite navigation signals, improved accuracy in time stability transfer, and faster acquisition times.

This activity focuses on integrating a HIGPS Enabling Technology Development (ETD) prototype. This effort is planned to transition to a HIGPS Technology Concept Demonstration (TCD) program under Navy program management at Office of Naval Research.

The increase from FY 2007 to FY 2008 is due to a Congressionally directed realignment of program from Air Force to the Navy.

The increase from FY 2008 to FY 2009 is required for procurement of prototype user equipment and completion of HIGPS technology demonstrations in FY 2009.

FY 2008 Plans:

• Initiate and complete the HIGPS Enabling Technology Development (ETD) prototype development which includes development of a HIGPS user receiver (UR) prototype design, development and implementation of prototype HIGPS base station equipment, demonstrations of long baseline precision time transfer, and Iridium ephemeris store and broadcast, and completion of various trade studies required to determine the optimum way forward in implementing the system concept demonstration.

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• Initiate the HIGPS Technology Concept Demonstration (TCD) project. The HIGPS project will continue using the HI GPS ETD as a foundation to assemble a system that will demonstrate the GPS augmentation concept. In FY 2008 the activity is concerned with the system demonstration using Iridium ephemeris store and broadcast, precision time and differential GPS aiding from a base station, an enhanced narrowband Iridium signal, and brassboard user equipment.

FY 2009 Plans:

• Complete the HIGPS TCD project.

	FY 2007	FY 2008	FY 2009
INFORMATION SECURITY RESEARCH	1,870	1,901	1,940

This Activity seeks to protect the Navy and Joint information infrastructure from hostile exploitation and attack. This requires situational awareness of network assets and operations. This activity focuses, in part, on integrating successful proof-of-concept research prototypes developed under PE 0602235N. The goal is to develop tools, techniques and methodologies to: improve network resistance to denial of service attacks; improve indications and warnings of suspect activities; conduct traffic analysis; monitor and assess network status and health; identify new capabilities to analyze network vulnerabilities and attacks; measure the effectiveness of Information Assurance (IA) protective measures; and improve the quality and level of certification of IA software.

FY 2007 Accomplishments:

• Continued development of the security management tool that provides a common picture of the networked environment with respect to IA and security, with emphasis on visualization capabilities to support active computer network defense.
• Continued development of a tool for the development of agents that integrates unified modeling language (UML) and that provides a verifiable agent programming language, an inter-agent communication protocol, security agents for enforcing run-time properties, and property checkers.
• Completed the development and demonstrated a secure, survivable, and dynamic service-oriented enterprise architecture to support military missions, addressing grid computing, peer-to-peer computing, and the adaptation of security features to those technologies for military use.

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• Initiated development of integrated capabilities that support battle damage assessment and infrastructure and asset protection based on information provided by the common picture of the networked environment with respect to IA and security.

FY 2008 Plans:

• Continue all efforts of FY 2007 less those noted as completed above.
• Continue development of integrated capabilities that support battle damage assessment and infrastructure and asset protection based on information provided by the common picture of the networked environment with respect to IA and security. Evaluate and demonstrate the capabilities in an operationally representative environment and use the results to improve the capabilities.
• Initiate the development of a tool suite that will provide evidence of assurance for security products based on the foundations of formal methods. The tool will provide the automated analysis of the implementation based on the security policy, the architecture and/or the software security critical functions.
• Initiate the development of capabilities and an infrastructure that will support the management of high assurance devices/components used within Navy networks. Ensure the approach is supported by the Navy's network centric architecture.

FY 2009 Plans:

• Continue all efforts of FY 2008.
• Complete the development of integrated capabilities that support battle damage assessment and infrastructure and asset protection based on information provided by the common picture of the networked environment with respect to IA and security.

	FY 2007	FY 2008	FY 2009
GLOBAL POSITIONING SYSTEM (GPS) & NAVIGATION TECHNOLOGY	4,638	4,608	4,870

This activity enhances Global Positioning System anti-jam (GPS AJ) capabilities and develops other technologies to provide alternative navigation methods. In the GPS AJ area, Space-Time Adaptive Processing (STAP) is being pursued to remove the operational risks associated with enemy jamming of GPS functions. Also, the next generation GPS receiver will be programmed with M-code; therefore, both the next generation M-code and the existing C/Y-codes must be used at the same timeframe. Office of Naval Research initiated a transitional receiver which will accommodate both the C/Y- and M-codes. The alternative navigation methods

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investigated include GPS receivers with a tightly coupled Inertial Navigation System (INS); gravity gradiometer development, used in a terrain-following concept; and an electro-optic accelerometer developed as an improved element in INS. This activity also develops the atomic clock for inclusion in Naval Systems. The atomic clock efforts include small, low-cost Rubidium (Rb), and Coherent Population Trapping (CPT) atomic clock development. These areas will provide alternatives to GPS navigation and alternatives to the availability of precise GPS-provided time transfer.

FY 2007 Accomplishments:

- Continued the demonstration project of nonlinearly constrained adaptive beam forming for defeating Binary Phase-Shift-Keying (BPSK) jammers. Developed an algorithm to mitigate the loss of Signal-to-Noise Ratio (SNR) through a combination of adaptive space-time-frequency signal processing techniques.
- Continued the development of a small, lightweight Micro-Electro-Mechanical Systems (MEMS) Accelerometer for navigation systems; and fabricated an Electro-Optic Accelerometer.
- Continued the development of algorithms for distributed time scaling; developed architectures necessary to establish a Navy Global Coordinated Time Scale; tested the algorithms via both simulation and using actual clock data provided by the U.S. Naval Observatory (USNO).
- Continued the Integrated Optically Transduced Gyro Assembly (IOTA) project.
- Continued the Enhanced AJ GPS Receiver Technology (EAGRT) project.
- Continued the Advanced Anti-Spoofing Detection and Isolation for GPS Acquisition project.
- Continued the Scaleable Integrated Micro Optical Gyroscope (SIMOG) project.
- Continued the Navigation Grade Microfabricated Integrated Optical Gyro (MIOG) project.
- Continued the Navigation Grade Sub-Harmonic Lateral Mode Gyro (GSLMG) project.
- Continued the development of the Sonar Aided Inertial Navigation Technology (SAINT).
- Completed the development of Magnetic Passive Navigation (MPN).
- Initiated the 5-cc accelerometer with the Embedded GPS Inertial (EGI) System for aircraft avionics applications.
- Initiated the MEMS Gyro-cluster INS for Tactical Platforms project.
- Initiated the Precision Celestial Navigation System (PCNS) project.
- Initiated the Dead Reckoning Advanced Tight Coupling (DRATC) project.
- Initiated the Qualification of a Commercial-Off-the-Shelf (COTS) Miniature Atomic Clock project.

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FY 2008 Plans:

- Continue all efforts of FY 2007 less those noted as completed above.
- Complete the demonstration project of nonlinearly constrained adaptive beam forming for defeating Binary Phase-Shift-Keying (BPSK) jammers. Develop an algorithm to mitigate the loss of Signal-to-Noise Ratio (SNR) through a combination of adaptive space-time-frequency signal processing techniques.
- Complete the development of the Sonar Aided Inertial Navigation Technology (SAINT).
- Initiate the GPS anti-spoofer antenna electronics effort using Electronic Support Measures (ESM) and tracking/location-based system.
- Initiate the navigation grade Inertial Navigation System (INS) using fiber optic/Micro-Electronic Mechanical System (MEMS) gyros and electro-optic accelerometers.
- Initiate the Adaptive Temporal Suppression of GPS Structured Interference project.
- Initiate the Simultaneous Localization and Mapping (SLAM) Inertial Measurement Unit (IMU) non-GPS Navigator (SINGN) project.
- Initiate the GPS Synchronization of a Chip-scale Atomic Clock project.

FY 2009 Plans:

- Continue all efforts of FY 2008 less those noted as completed above.
- Complete the development of IOTA.
- Complete the development of EAGRT.
- Complete the Advanced Anti-Spoofing Detection and Isolation for GPS Acquisition project.
- Complete the development of SIMOG.
- Complete the development of MIOG.
- Complete the development of GSLMG.
- Complete the development of SAINT.
- Complete the SLAM IMU non-GPS Navigator (SINGN) project.
- Complete the GPS Synchronization of a Chip-scale Atomic Clock project.
- Complete the Qualification of a COTS Miniature Atomic Clock project.
- Initiate the development of the Sonar Aided Bathymetric Navigation Technology.
- Initiate the Optically Transduced MEMS Inertial Navigation System project.
- Initiate the Sub-harmonic Lateral Mode MEMS Inertial Navigation System project.
- Initiate the Two-Axis Gyro-compass Fiber Optic Inertial Navigation System project.

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	FY 2007	FY 2008	FY 2009
USCG VESSEL TRACKING	2,668	0	0

Details are of a higher classification.

All effort in this activity completed in FY 2007.

	FY 2007	FY 2008	FY 2009
MARINE MAMMALS	965	0	0

This initiative provides data and technology for making informed decisions regarding the interaction of naval activities with protected marine life and habitats to enable platform operation and force projection, and maximize use of Navy training ranges within environmental constraints. Ensure Navy compliance with national environmental laws, Executive Order 12114, and OPNAVINST 5090.1B while still maintaining full operational and training exercise capabilities.

All Marine Mammal efforts within this activity transfer to PE 0602435N effective FY 2008.

FY 2007 Accomplishments:

- Continued Temporary Threshold Shift (TTS) data collection to determine time, energy trade-off and recovery rates for long duration sound exposures and multiple pings typical of Navy operations and training.
- Continued to expand Marine Mammal Monitoring on Navy Ranges (M3R) capability for tracking beaked whales and develop classification software for identification of marine mammal species and populations.
- Continued M3R Atlantic Undersea Test Evaluation Center (AUTEC) on-site analysis and Pacific Missile Range Facility (PMRF) data collection with visual surveys.
- Continued TTS data collection to develop cumulative sound exposure model for seals and sea lions.
- Continued technology transition agreement (TTA) with CNO N45.
- Completed multiple ping TTS data collection for dolphins.
- Completed TTS Acoustic Safety Criteria Model for multiple sonar pings on dolphins and toothed whales.
- Initiated transition from behavioral to electrophysiological measurements of hearing/TTS in marine mammals.
- Initiated transition plan for demonstration and evaluation of M3R technology at other Navy ranges.

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- Initiated sound exposure study at AUTEC to develop effective M3R mitigation methodology for Navy ranges.

	FY 2007	FY 2008	FY 2009
KNOWLEDGE SUPERIORITY AND ASSURANCE (KSA)	38,647	32,626	36,568

This activity is aligned with the FORCEnet pillar and explores fundamental technologies that enhance the Navy's capability to exploit, manage and integrate complex, heterogeneous, multi-source information for the next generation common picture. Science and Technology (S&T) work is being focused on Navy and Marine Corps Warfighter Capability Gaps identified through analysis of operational and exercise lessons learned, as well as campaign analysis of capabilities required in the 2010-2024 time frame.

Warfighter Capability Gaps are being addressed by Enabling Capabilities (EC). Each EC delivers capability-level products to acquisition in a three to five-year effort, and allocates a sufficient investment to ensure a capability is provided. ECs addressed include: Secure Collaboration; Advanced Communication for FORCEnet; GIG Compliant Networking; Dynamic Target Engagement and Enhanced Sensor Capabilities; Next Generation Command, Control and Decision Support Services; COCOM to Marine Combat ID; Combat ID Information Management of Coordinated Electronic Surveillance; Combat ID in the Maritime Domain to Reveal Contact Intent; Automated Control of Large Sensor Networks; and Globally Netted Joint/Coalition Force Maritime Component Commander.

The decrease from FY 2007 to FY 2008 is due to the completion of efforts on Tactical Signal Intelligence (SIGINT) (SLY FOX) in connection with completion of the overall EC COCOM to Marine Combat ID in FY 2009.

The increase from FY 2008 to FY 2009 is due to initiation of the following ECs: Improved Maritime Common Operating Tactical Picture in a GIG-Enterprise Services (ES) Environment and Assured Information Exchange.

FY 2007 Accomplishments:

- Continued efforts on Joint Coordinated Real-Time Engagement (JCRE) Advance Concepts Technology Demonstration (ACTD) to provide Global Information Grid (GIG)-compliant core enterprise Services and Community of Interest (COI) Services which ensured warfighting COIs access to information required from any source for rapid situation awareness assessment.
- Completed effort on SIGINT (Sly Fox).
- Completed the Innovative Tactical Beyond Line of Sight (BLOS) Communications Relay (previously reported in PE 0603236N).

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- Completed Network Management Tools effort.
- Completed development of Integrated Autonomous Network Management (IANM) by transitioning to Automated Digital Network System (ADNS) Integrated Ship Network System (ISNS)/ADNS PMW-160. This enables central monitoring of as many as 15 distributed network management systems, tactical shore and ship, in a 1500 nm area. This network automatically assesses the environment and recommends changes to optimize network performance in real time (10s of seconds). As a result, there will be manpower savings, fewer personnel required to manage computers, and communication networks for big-deck ships.
- Initiated smart algorithms for tactical sensors.
- Initiated Combat ID in the Maritime Domain to Reveal Combat Intent.

FY 2008 Plans:

- Continue all efforts of FY 2007 less those noted as completed above.
- Complete development of Secure, Distributed Collaboration effort. Transition to the PEO for C4I and Space, for the PMW 160 program the Combined Enterprise Regional Information Exchange System (CENTRIXS) for secure collaboration across multiple coalition boundaries and security levels in the maritime environment. This enhances real-time collaboration among coalition partners and own forces and increases decision speed based on the integrated and shared tactical picture. It also enforces security policy providing increases in assurance level.
- Complete Ultra High Frequency (UHF)/L-Band phased array antennas for carriers (previously PE 0603271N).
- Complete the High Altitude Airborne Relay and Router Package to deliver relay/router packages for a high and medium altitude platforms across UHF/VHF and Ku-Bands (previously reported in PE 0603271N).
- Initiate development of technology to enable the coordinated Global Joint and Coalition Force Maritime Component Commander (J/CFMCC) capture and share information from sources and processes; with the intended result of managing at least 10,000 tracks per day in a consistent manner to support user awareness and control (current capability is approximately 200 tracks per day globally).

FY 2009 Plans:

- Continue all efforts of FY 2008 less those noted as completed above.
- Complete the Joint Coordinated Real-Time Engagement (JCRE) Advance Concepts Technology Demonstration (ACTD) to provide GIG-compliant core enterprise Services and COI Services which will ensure warfighting COIs access to information required from any source for rapid situation awareness assessment.
- Initiate development of advanced technologies that support delivery of Technology Oversight Group (TOG)

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approved FNC enabling capabilities structured to close operational capability gaps that involve the common picture.
• Initiate packaging of advanced common picture technologies into deliverable FNC products and ECs that can be integrated into acquisition programs within a five year period.
• Initiate effort to mature common picture technologies that support naval requirements identified within the FORCEnet naval capability pillar.
• Initiate effort to mature, demonstrate and apply emerging technologies that support dynamic and response management and control of net-centric enterprise theater and tactical ASW operations. This includes automation support for synchronized planning of resources and multi-mission execution, and access and shared awareness of data, activities and status among Maritime Operation Centers and tactical forces in a tactical netted service-oriented architecture (SOA) environment.
• Initiate effort to develop and apply emerging technologies that support self organizing networking and assured communications exchange in tactical communications networks.

	FY 2007	FY 2008	FY 2009
MULTI-SOURCE INTEGRATION (MSI) AND COMBAT IDENTIFICATION (CID)	6,270	1,000	0

This activity is aligned with the Sea Shield pillar. Multi-Source Integration (MSI), Advanced Sensor Netting Technology (ASNT), and Composite Combat Identification (CCID) technology address theater air and missile defense (TAMD) needs for data fusion, correlation of and reasoning over attributes leading to target Identification, and sensor fusion/management. The goal is to develop algorithms for use by air defense combat systems which will then be able to fuse, filter, and correlate on-board sensor and off-board battlespace information from all sources to achieve one common Combat Identification (CID) solution using Theater-wide information. This activity supports the Sea Shield Enabling Capability for Real Time Long Range Air Defense CID in Support of Early Engagements and related CID Science & Technology to be worked under FORCEnet.

Change in funding reflects the completion of efforts within this activity in FY 2008.

FY 2007 Accomplishments:

• Completed laboratory demonstrations of ASNT and CCID.
• Completed MSI project development and testing of algorithms to integrate real time and non-real time sensor data and correlate satellite communications (SATCOM) data in the E-2C mission computer.

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- Completed development of ASNT algorithms for integration of electronic warfare support (ES) data into the Open Architecture Track Manager in future combat systems and transmission of track ID attributes via real time sensor networks.
- Completed development of CCID algorithms to correlate and fuse real time tracks with intelligence, surveillance, and reconnaissance data in Ship Signal Exploitation Equipment (SSEE) equipped surface ships and common reasoning algorithms for CID capability to rapidly build high confidence identification of air tracks using all available ID attributes in theater.

FY 2008 Plans:

- Complete technology transition to the E-2C/D Program Management Office (PMA-231), Intelligence, Surveillance, Reconnaissance, and Information Operations Program Office (PMW-180), and PEO-IWS.

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E:
PE 0204152N E-2 Squadrons
PE 0205601N HARM Improvement
PE 0206313M Marine Corps Communications Systems
PE 0303140N Information Systems Security Program
PE 0308601N Modeling and Simulation Support
PE 0601153N Defense Research Sciences
PE 0602114N Power Projection Applied Research
PE 0602123N Force Protection Applied Research
PE 0602131M Marine Corps Landing Force Technology
PE 0602235N Common Picture Applied Research
PE 0602236N Warfighter Sustainment Applied Research
PE 0602271N RF Systems Applied Research
PE 0603114N Power Projection Advanced Technology
PE 0603123N Force Protection Advanced Technology
PE 0603236N Warfighter Sustainment Advanced Technology
PE 0603271N RF Systems Advanced Technology
PE 0603609N Conventional Munitions
PE 0603640M USMC Advanced Technology Demonstration (ATD)
PE 0603658N Cooperative Engagement
PE 0604307N Surface Combatant Combat System Engineering

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PE 0604518N Combat Information Center Conversion

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E:
PE 0603750D8Z Advanced Concept Technology Demonstrations

D. ACQUISITION STRATEGY:
Not applicable.

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PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

CONGRESSIONAL PLUS-UPS:

	FY 2007	FY 2008
4D DATA FUSION VISUALIZATION	1,554	0

This effort developed new display techniques to present and integrate 4- dimensional information over time, as well as developing techniques for visualizing the time latency of information content.

	FY 2007	FY 2008
COMPUTER FORENSICS FOR ENHANCED MARITIME DOMAIN AWARENESS	0	994

This project will develop software and methods to analyze existing and new software applications residing on military networks to discover vulnerabilities and exploitations.

	FY 2007	FY 2008
IMPROVED SHIPBOARD COMBAT INFORMATION	1,311	0

This project developed techniques that enabled Combat Information Center watchstanders to better receive, comprehend, and respond to incoming data during combat operations (enhancing combat operations) while also reducing the number of required Combat Information Centers (CICs).

	FY 2007	FY 2008
MARITIME IDENTIFICATION SURVEILLANCE TECHNOLOGY (MIST)	971	1,590

FY 2007 - MIST developed technologies to provide continuous surveillance, identification and tracking of all surface ships around naval platforms at sea, or in coastal waters and harbors.

FY 2008 - This effort will develop and test a low cost multifunction X-Band radar sub-array.

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	FY 2007	FY 2008
RAIL SENSOR TESTBED	1,262	0

This project developed technologies to support the real-time detection, identification, and assessment of chemical, biological, radiological, and nuclear threats to the United States.

	FY 2007	FY 2008
SITUATIONAL AWARENESS IMPROVEMENTS AT FORWARD OPERATING BASES IN IRAQ	1,949	0

This project developed learning algorithms to incorporate multiple sensor signature recognition and integration for alerting an operator to anomalous or suspect activity. The automation of certain processes reduces manual target feature processing by operators.

	FY 2007	FY 2008
URBAN DATA DELIVERY IN THE VIRTUAL BATTLE LAB	971	0

This project developed techniques to extend net-enabled urban geographical information system capabilities to lower-echelon tactical warfighters.