

UNCLASSIFIED  
 FY 2000 President's Budget Estimates  
 EXHIBIT R-2, FY 2000 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4           PROGRAM ELEMENT: 0604707N  
 PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

(U) COST: (Dollars in Thousands)

PROJECT

NUMBER TITLE	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0798 OTH Targeting	1,378	1,601	1,600	1,615	1,851	1,948	2,002	2,058	Cont.	Cont.
X2144 SEW Engineering	7,014	7,386	8,593	8,701	8,758	7,871	9,168	9,551	Cont.	Cont.
X2357 Maritime Battle Center	2,831	8,822	23,915	24,082	24,191	24,212	24,198	24,184	Cont.	Cont.
X2461 Dec Centered Design	1,637	0	1,062	1,514	1,448	931	879	881	Cont.	Cont.
X2630 Adv Comm Info Tech	0	1,995	0	0	0	0	0	0	Cont.	Cont.
<b>TOTAL</b>	<b>12,860</b>	<b>19,804</b>	<b>35,170</b>	<b>35,912</b>	<b>36,248</b>	<b>34,962</b>	<b>36,247</b>	<b>36,674</b>	<b>Cont.</b>	<b>Cont.</b>

(U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) contains five projects: Over-the-Horizon (OTH) Targeting, Space and Electronic Warfare (SEW) Engineering, Maritime Battle Center and Decision Centered Design (DCD), Advanced Communications Information Technology (ACI). The projects are systems engineering non-acquisition programs with the objectives of developing, testing and validating Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance, (C4ISR) architectures to support naval missions in Joint and Coalition Theater. The mission of this program element is carried out by multiple tasks that are used to ensure Naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into the C4ISR architectures. The Program additionally ensures that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture as related to the objectives of National Defense Strategy and evolving joint visions and direction, such as Joint Vision 2010 (JV 2010), "Copernicus...C4ISR for the 21st Century," "Forward...From the Sea," C4I For the Warrior, and the Defense Science Board Summer Study Task Force on Information Architecture for the Battlefield and are guided by CINC requirements; and (2) that SEW systems and systems integration effort involves leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability, flexible reconfiguration, as well as reduce costs. The Maritime Battle Center is a distributed organization consisting of concept development, experimentation and analysis coordinated by the Naval War College, and the Navy Warfare Development Command, and C4ISR technical and acquisition support coordinated by the Space and Naval Warfare Systems Command (SPAWAR). The MBC will also act as the Navy representative to the Joint Battle Center and the Battle Labs of other services. The Decision Centered Design (DCD) program will develop, implement and support a Navy process to examine emerging cognitive and technical advancements, critical Decision Makers' requirements and integrate them into measured and

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PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

costed enhancements for decision support systems, doctrine, training and manning requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental tests related to specific ship or aircraft applications. It also develops a virtual demonstration and validation environment across Navy for C4ISR.

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 EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4 PROGRAM ELEMENT: 0604707N PROJECT NUMBER: X0798  
 PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support PROJECT TITLE: OTH Targeting

(U) COST: (Dollars in Thousands)

NUMBER TITLE	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2004 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X0798 OTH Targeting	1,378	1,601	1,600	1,615	1,851	1,948	2,002	2,058	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Over-the-Horizon Targeting (OTH-T) program provides a virtual, global systems integration and test facility for Information Technology for the 21st Century (IT-21) C4ISR technology that supports the collection, transmission, correlation, and display of track data into a Common Operational Picture (COP) in support of warfighting requirements. This effort was originally undertaken to support targeting of over the horizon weapons such as the TOMAHAWK cruise missile. The common view of the battle space that was provided to the warfighter by OTH-T has been applied across the spectrum of warfare missions; however, the technology and doctrine on which it was based has changed radically in recent years. The result is that the first goal of the OTH-T program is to transition the OTH architectures and systems from older MIL STD technologies to COTS based technologies that support the network centric model of the Navy's plan to support JV 2010 implementing IT-21 technology. The second goal of the OTH-T program will be to support the integration of all C4I systems into warfighting capabilities which includes Year 2000 (Y2K) integration and testing. This support includes providing technical expertise afloat and ashore via a cadre of highly-trained Fleet Systems Engineers who ensure smooth integration of new capabilities to enhance OTH-T during major Fleet exercises and demonstrations which are used to validate and evaluate developed portions of configuration. The OTH-T program integration and testing in support of the warfighting capabilities will also include Y2K interoperability testing for both MIL-STD and IT-21 COTS equipment for submarines, surface, and land based components.

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Exhibit R-2a, RDT&amp;E Budget Item Justification (Project X0798)

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(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1.            (U) FY 1998 ACCOMPLISHMENTS:

- (U) (\$273) Performed interoperability test on Global Command and Control System - Maritime (GCCS-M) to verify compliance with appropriate specifications. Reported findings from test to program developer to allow discrepancies to be addressed prior to OPEVAL testing.
- (U) (\$123) Supported development of COP Synchronization Tools Functional requirements. Addressed multicast dissemination of COP. Developed e-mail CONOPs for IT-21 hardware and software configurations on Lincoln Battle Group and tested at the Reconfigurable Land Based Test Site (RLBTS).
- (U) (\$449) Performed IT-21 interoperability testing aboard the Lincoln and Kitty Hawk Battle Groups. Validated and verified testing parameters addressing Asynchronous Transfer Mode (ATM) interoperability, e-mail configuration, and interfaces between JMCIS 98 and legacy C4I equipment. Provided system engineering support to Stennis, Lincoln, Saipan, Enterprise, Eisenhower, and Kitty Hawk to test for OTH-T interoperability problems during exercises. Participated as advisor on the Naval Virtual Internet (NVI) Integrated Product Team.
- (U) (\$237) Performed interoperability tests, testing performance of COTS products over Automated Digital Network System (ADNS). Recommended changes to Microsoft products to operate in compliance with TCP specifications in order to optimize performance over ADNS and INMARSAT-B networks. Recreated problems found during CVBG workups in lab and recommended courses of action. Performed interoperability test of SSN IT-21 configuration of JMCIS 98 and legacy equipment.
- (U) (\$296) Upgraded the Repeatable Performance Evaluation Analysis Tool (REPEAT) to provide Windows interface to data preparation and analysis functions. Demonstrated ability to transfer Mission Data Updates (MDU) using WWW pages based on REPEAT. Began developing mechanism to import Link-16 data into REPEAT.

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2. (U) FY 1999 PLAN:

- (U) (\$155) Based on results of integration testing, develop capability functional description documents which will be used by the programs of record to define system functional requirements that support these capabilities. Develop system interface standards where required. Provided a valid master configuration database in support of the new IT-21 Battlegroup configurations.
- (U) (\$316) Conduct systems integration, interoperability, and Y2K testing using the facilities of the Land Based Test Network (LBTN) and Systems Integration and Test (expanded RLBTs to validate IT-21 technologies prior to shipboard installation).
- (U) (\$496) Validate and verify the interoperability of architectures for new capabilities and supporting systems to the fleet. Work with the fleet staffs and Naval Doctrine Command to develop policy and doctrine for operations of NVI in support of Network Centric Warfare ideology. Serve as technical expert in researching the fleet's technical questions and providing information.
- (U) (\$419) Ensure joint interoperability of all systems on the NVI by enforcing compliance with the Joint Technical Architecture and Y2K. Verify relevance, recommend modifications to, and maintain OTH-T specifications for support of distribution of the COP to maritime forces. The program's systems engineers will make input into the SPAWAR advanced technology division to insure critical deficiencies are high priority during investigation of IT-21. Provide connectivity and conduct integration and interoperability testing to verify Y2K compliance and provide systems engineering expertise for both IT-21 and MIL-STD technologies.
- (U) (\$215) Provide software enhancements to the REPEAT software including adapting the software operationally to transfer MDUs through available data links.

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PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: OTH Targeting

3. (U) FY 2000 PLAN

- (U) (\$391) Conduct and document interoperability certification testing at the OTH-T Land Based Test Site and Systems Integration and Test Facility. Use the Land Based Test Site to test evolutionary software enhancements of GCCS-M and JMCOMS. Furnish mechanisms for providing feedback to the developers of the GCCS-M and JMCOMS applications.
- (U) (\$118) Maintain configuration control over OTH-T systems and chair the Configuration Control Board (CCB) in order to maintain interoperability between legacy and non-legacy systems.
- (U) (\$45) Prepare/update OTH-T specification, (e.g., Battle Group Database Management Specification, Rev B, and Message Processing Specification), based on results of interoperability testing, for support of distribution of COP to maritime forces.
- (U) (\$410) Provide connectivity and conduct C4ISR state-of-the-art systems integration and interoperability testing using the Systems Integration & Test (SIT) and LBTN to validate configurations and equipment to be provided to the warfighter in approaching JV2010 network centric warfare capabilities.
- (U) (\$196) Prepare a recommended evolutionary acquisition strategy for N6 to use in bringing the C4ISR operational framework, the possibilities created by IT-21 and the emerging concept of Network Centric Warfare, to the warfighter.
- (U) (\$440) Validate and verify the interoperability of architectures for new capabilities and supporting systems to the fleet.

B. (U) PROGRAM CHANGE SUMMARY: FY1998: SBIR Reduction (-\$38K), BTR Updates (-\$153K); FY 1999: Revised Economic Assumptions (-\$4K), Civilian Personnel Underexecution (-\$2K); FY 2000: C2 Systems Program Offset for IT-21 (-\$69K), Reduction to finance higher priority program (-\$40K), NWCF Rates (+\$21K), Civilian Pay Rates (+\$7K), Non Pay Inflation (-\$23K), and additional inflation reduction (-\$1K).

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PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: OTH Targeting

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: (SEW) Architecture/Engineering Support program element is related to all Naval C4I related efforts.

D. (U) Schedule Profile: Not applicable.

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EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X0798

Exhibit R-3 Cost Analysis (page 1)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/4				PROGRAM ELEMENT 0604707N					PROJECT NAME AND NUMBER OTH Targeting X0798			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Remarks:												
Subtotal Support												
Remarks												

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X0798

Exhibit R-3 Cost Analysis (page 2)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/4			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER OTH Targeting X0798			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYS Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	Various	1319	156	TBD	153	TBD			Cont.	Cont.	Cont.
System Test and Evaluation	Various	Various	3056	623	TBD	726	TBD			Cont.	Cont.	Cont.
Systems Engineering	Various	Various	764	326	TBD	235	TBD			Cont.	Cont.	Cont.
Interoperability Requirements	Various	Various	2792	496	TBD	486	TBD			Cont.	Cont.	Cont.
Subtotal T&E			7931	1601		1600				Cont.	Cont.	Cont.
Remarks												
Subtotal Management												
Remarks												
Total Cost			7931	1601		1600				Cont.	Cont.	Cont.

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4                   PROGRAM ELEMENT: 0604707N                   PROJECT NUMBER: X2144  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support   PROJECT TITLE: SEW Engineering

(U) COST: (Dollars in Thousands)

NUMBER TITLE	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2004 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2144 SEW Engineering	7,014	7,386	8,593	8,701	8,758	7,871	9,168	9,551	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Space and Electronic Warfare (SEW) Engineering is a non-acquisition engineering effort defined as the neutralization or destruction of enemy targets and the enhancement of friendly force battle management through integrated employment and exploitation of the electromagnetic spectrum and the medium of space. SEW Engineering encompasses efforts to ensure that 1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture as related to the National Defense Strategy and evolving joint visions and direction such as Joint Vision 2010, "Copernicus...C4ISR for the 21st Century," "Forward...From the Sea," C4I for the Warrior, and the Defense Science Board Summer Study Task Force Report on Information Architecture for the Battlefield, and are guided by CINC requirements; 2) the systems support emerging fleet requirements as documented and necessitated through concepts such as Network Centric Warfare, Integrated Information Base, IT-21, and Naval Virtual Intranet; and 3) the SEW systems and systems integration effort involves leading edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability, flexible reconfiguration, as well as reduce costs. SEW Engineering also provides the Navy support in the demonstration and integration of C4I systems developed by the services and by commercial vendors as part of the annual Joint Warrior Interoperability Demonstration (JWID) sponsored by the Joint Chiefs of Staff. Each JWID is designed to identify joint interoperability deficiencies, and to solicit solutions to these deficiencies from commercial industry. Additionally, JWID demonstrates these technologies for assessment by the warfighters from ongoing service efforts. Service participants benefit from the exposure to the new technologies, the assessments process, and the equipment that is left in place for further use and evaluation.

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Exhibit R-2a, RDT&amp;E Budget Item Justification (Project X2144)

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4                      PROGRAM ELEMENT: 0604707N                      PROJECT NUMBER: X2144  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support                      PROJECT TITLE: SEW Engineering

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1998 ACCOMPLISHMENTS:

- (U) (\$2,815) Developed plans for the integration of maturing system developments, military and commercial technologies that support the "Copernicus...C4ISR for the 21st Century" concept into the annual Joint Warrior Interoperability Demonstration (JWID). Plans incorporated the use of enhanced operational capabilities in key CINC priority areas and Joint Mission Area (JMA) Assessment Thrust Areas including high capacity communication, improved Command and Control Warfare (C2W), integrated land fight architecture, trusted systems/multi-level security, improved sensors/strike planning, common tactical/operational picture, theater air defense/force protection, and combat identification.
- (U) (\$1,770) Developed installation/integration plans for Fleet Battle Experiments (FBE) Charlie and Delta in support of the Maritime Battle Center (MBC). Coordinated the installation of C4ISR systems and equipment to effect the conduct of the above experiments that examined new C4ISR concepts and technologies. Beginning in FY99 Maritime Battle Center will be funded in Project X2357.
- (U) (\$1,132) Continued to develop and validate a Naval C4ISR Architecture based the multi-tier architecture framework of Operational, System, and Technical to support Naval missions in a Joint and Coalition Theater. Architectural development will consist of (1) assisting OPNAV, Navy Doctrine Command, and Fleet Commanders in the continuing upgrade of Operation Architectures and maintain documentation describing the Operational Architectures; and (2) providing system architecture parameters, attributes, and characteristics necessary to ensure that Program Executives and Managers acquire systems that achieve the desired operational objectives. Participated with the Joint Battle Center and Naval Battle Laboratories to verify and validate operational and system architectures. The "To-Be" C4ISR systems architecture was initiated. Previously delivered operational architectures were updated.
- (U) (\$650) Continued architectural and system engineering efforts leading to incremental design and implementation, specifically the integration of JMCOMS, JMCIS, and CDS.
- (U) (\$175) Reviewed, validated, and provided operational insight into the development of the "Copernicus...C4ISR for the 21st Century" Implementation Documentation.

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Exhibit R-2a, RDT&E Budget Item Justification (Project X2144)

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2144

PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT TITLE: SEW Engineering

- (U) (\$472) Developed the high-level systems and operational architecture processes to include long-range planning for Joint Vision 2010, "Copernicus...C4ISR for the 21st Century," C4I for the Warrior, Joint Air Operations Functional Process Improvement, Theater Battle Management (in conjunction with the Air Force), Digitization of the Battlefield (with the Army), Marine Air Ground Task Force (MAGTF) C4I and integration into the DII. An updated integrated C4ISR systems architecture, integrated node list, information exchange requirements and hierarchical data dictionary will be provided. Participated in OSD and joint architectural working groups and panels.

2. (U) FY 1999 PLAN:

- (U) (\$941) Develop plans for the integration of maturing system developments, military and commercial technologies that support enhanced operational capabilities in key CINC priority areas and Joint Mission Area (JMA) Assessment Thrust Areas into the annual Joint Warrior Interoperability Demonstration (JWID). Integration plans will include high-capacity communications, improved Command and Control Warfare (C2W), integrated landfight architecture, trusted systems/multi-level security, improved sensors/strike planning, common operational picture, collaborative planning, knowledge based systems, smart push-warrior pull data flow, theater air defense/force protection, and combat identification.
- (U) (\$881) Generate the Copernicus Implementation Guidance, applying a web-based collaborative grid approach where programs/projects are synchronized across the claimancy / acquisition community. The current guidance requires redirection to incorporate emerging warfighter requirements and concepts. The shift from platform centric warfare to network centric warfare demands that new approaches are identified, matured and tested with the warfighters and systems developers. The product will be a validated and modeled methodology, based on web technology, whereby a matrix of capabilities are mapped to organizations and products, leading to prioritized and scoped C4ISR work elements for claimancy pursuits.
- (U) (\$188) Augment / update / maintain the Overarching C4ISR Operational Requirements Documentation. The composite operational capabilities of C4ISR systems (not the individual component systems) must be designed so that they conform to the Naval C4ISR architecture as it relates to the National Defense Strategy and evolving joint visions and direction such as Joint Vision 2010, "Copernicus...C4ISR for

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the 21st Century," "Forward...From the Sea", C4I for the Warrior and the Defense Science Board Summer Study Task Force Report on Information Architecture for the Battlefield, and are guided by CINC requirements. As operational requirements change, either through changes in mission, technological change, technical insertion into systems, or through systems integration efforts, these changes must be reflected in the latest operational architectures. Additionally, support related C4ISR architecture projects as they support Theater and Battleforce C4ISR architectures must be maintained.

- (U) (\$2,659) Enhance and refine the C4ISR Planned Systems Design for the POM years. Continue to develop and validate a Naval C4ISR Architecture based on the multi-tier architecture framework of Operational, System, and Technical to support Naval missions in a Joint and Coalition Theater. Architectural development will consist of (1) assisting OPNAV, Navy Doctrine Command, and Fleet Commanders in the development of operation and overarching architectures and maintaining documentation describing the Systems Architectures; (2) providing system architecture parameters, attributes, and characteristics necessary to ensure that Program Executives and Managers acquire systems that achieve the desired operational objectives. Participate with the Joint Battle Center and Naval Battle Laboratories to verify and validate systems architectures. The POM C4ISR Systems Architecture will be completed. The "As-Is" C4ISR Systems Architecture will be updated as appropriate. The decomposition of the overarching POM C4ISR Systems Architecture will be accomplished. This involves breaking down the specifics of warfighter functions to lower levels of detail. From this, SPAWAR can develop the "ring charts" for Battle Groups / Amphibious Ready Groups, generic platform designs, and detailed designs for each platform. Sponsor and/or participate in related IPTs within the claimancy and throughout the Navy Department and DoD, as required; and Participate in OSD and joint architectural working groups and panels. Define an end-to-end process model to document the C4ISR systems development process and relationships among the systems development components.
- (U) (\$841) Continue support to the Joint Technical Architecture/Standards development/documentation and implementation effort, and publish periodic updates. Represent and coordinate Navy inputs into the Joint Technical Architecture developed in conjunction with both internal Naval and external service units and agencies including the and ASD(C3I) Joint Technical Architecture (JTA) Development Group (JTADG). Navy inputs to the JTA Version 3.0 will be developed in accordance with direction from the Technical Architecture Steering Group (TASG) and the DoD Architecture Coordination Council (ACC). Coordinate the JTA standards and protocols with the DON CIO's Information Technology Standards Guidance (ITSG) document. Coordinate the implementation of JTA standards and protocols throughout the C4ISR systems development community. Provide appropriate design guidance and resulting data inputs into the Naval Architecture Database (NAD). Support and coordinate NAD tools development for JTA

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products. Mature the Levels of Information Systems Interoperability (LISI) constructs as they relate to the JTA.

- (U) (\$1,876) Mature the Naval Architecture Database (NAD) to encompass; establish and populate the dynamic systems model, analyze of the criteria and requirements for the operational system architecture functional transition, continue population of the data models and update the Hierarchical Data Dictionary to reflect Joint study inputs, and provide C4ISR implementation of the Maritime Battle Center (MBC) including senior test engineers and laboratory coordinators to provide test/experimentation development planning with other Navy and service organizations for the conduct of Naval and Joint experiments including Fleet Warfare Experiments, JWID, IT-21, Theater Air Defense (TAD) Battle Management C4I (BMC4I), etc. Products include; expanded reference sets, a refined data model and schema, the addition of the SMIDB database, the Levels of Information Systems Interoperability Technical Reference Model, an expanded tool set, and documented relationships to related databases.

3. (U) FY 2000 PLAN:

- (U) (\$2,694) Develop plans for the integration of maturing system developments, military and commercial technologies that support enhanced operational capabilities in key CINC priority areas and Joint Mission Area (JMA) Assessment Thrust Areas into the annual Joint Warrior Interoperability Demonstration (JWID). Integration plans will include high-capacity communications, improved Command and Control Warfare (C2W), integrated landfight architecture, trusted systems/multi-level security, improved sensors/strike planning, common operational picture, collaborative planning, knowledge based systems, smart push-warrior pull data flow, theater air defense/force protection, and combat identification. Procure demonstrated and assessed Joint Chief of Staff mandated Golden Nuggets Technologies that will benefit operational forces with their immediate employment at sea or in the field.
- (U) (\$806) Generate the Copernicus Implementation Guidance, applying a web-based collaborative grid approach where programs/projects are synchronized across the claimancy / acquisition community. The current guidance requires redirection to incorporate emerging warfighter requirements and concepts. The shift from platform centric warfare to network centric warfare demands that new approaches are identified, matured and tested with the warfighters and systems developers. The product will be a

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validated and modeled methodology, based on web technology, whereby a matrix of capabilities are mapped to organizations and products, leading to prioritized and scoped C4ISR work elements for claimancy pursuits.

- (U) (\$172) Augment / update / maintain the Overarching C4ISR Operational Requirements Documentation. The composite operational capabilities of C4ISR systems (not the individual component systems) must be designed so that they conform to the Naval C4ISR architecture as it relates to the National Defense Strategy and evolving joint visions and direction such as Joint Vision 2010, "Copernicus...C4ISR for the 21st Century," "Forward...From the Sea", C4I for the Warrior and the Defense Science Board Summer Study Task Force Report on Information Architecture for the Battlefield, and are guided by CINC requirements. As operational requirements change, either through changes in mission, technological change, technical insertion into systems, or through systems integration efforts, these changes must be reflected in the latest operational architectures. Additionally, support related C4ISR architecture projects as they support Theater and Battleforce C4ISR architectures must be maintained.
- (U) (\$2,434) Enhance and refine the C4ISR Planned Systems Design for the POM years. Continue to develop and validate a Naval C4ISR Architecture based on the multi-tier architecture framework of Operational, System, and Technical to support Naval missions in a Joint and Coalition Theater. Architectural development will consist of (1) assisting OPNAV, Navy Doctrine Command, and Fleet Commanders in the development of operation and overarching architectures and maintaining documentation describing the Systems Architectures; (2) providing system architecture parameters, attributes, and characteristics necessary to ensure that Program Executives and Managers acquire systems that achieve the desired operational objectives. Participate with the Joint Battle Center and Naval Battle Laboratories to verify and validate systems architectures. The POM C4ISR Systems Architecture will be completed. The "As-Is" C4ISR Systems Architecture will be updated as appropriate. The decomposition of the overarching POM C4ISR Systems Architecture will be accomplished. This involves breaking down the specifics of warfighter functions to lower levels of detail. From this, SPAWAR can develop the "ring charts" for Battle Groups / Amphibious Ready Groups, generic platform designs, and detailed designs for each platform. Sponsor and/or participate in related IPTs within the claimancy and throughout the Navy Department and DoD, as required; and Participate in OSD and joint architectural working groups and panels. Define an end-to-end process model to document the C4ISR systems development process and relationships among the systems development components.
- (U) (\$769) Continue support to the Joint Technical Architecture/Standards development/documentation and implementation effort, and publish periodic updates. Represent and coordinate Navy inputs into the

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Exhibit R-2a, RDT&amp;E Budget Item Justification (Project X2144)

## UNCLASSIFIED

FY 2000 President's Budget Estimates  
EXHIBIT R-2a, FY2000 RDT&E, N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4            PROGRAM ELEMENT: 0604707N            PROJECT NUMBER: X2144  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: SEW Engineering

Joint Technical Architecture developed in conjunction with both internal Naval and external service units and agencies including the and ASD(C3I) Joint Technical Architecture (JTA) Development Group (JTADG). Navy inputs to the JTA Version 3.0 will be developed in accordance with direction from the Technical Architecture Steering Group (TASG) and the DoD Architecture Coordination Council (ACC). Coordinate the JTA standards and protocols with the DON CIO's Information Technology Standards Guidance (ITSG) document. Coordinate the implementation of JTA standards and protocols throughout the C4ISR systems development community. Provide appropriate design guidance and resulting data inputs into the Naval Architecture Database (NAD). Support and coordinate NAD tools development for JTA products. Mature the Levels of Information Systems Interoperability (LISI) constructs as they relate to the JTA.

- (U) (\$1,718) Mature the Naval Architecture Database (NAD) to encompass; establish and populate the dynamic systems model, analyze of the criteria and requirements for the operational system architecture functional transition, continue population of the data models and update the Hierarchical Data Dictionary to reflect Joint study inputs, and provide C4ISR implementation of the Maritime Battle Center (MBC) including senior test engineers and laboratory coordinators to provide test/experimentation development planning with other Navy and service organizations for the conduct of Naval and Joint experiments including Fleet Warfare Experiments, JWID, IT-21, Theater Air Defense (TAD) Battle Management C4I (BMC4I), etc. Products include; expanded reference sets, a refined data model and schema, the addition of the SMIDB database, the Levels of Information Systems Interoperability Technical Reference Model, an expanded tool set, and documented relationships to related databases.

B. (U) PROGRAM CHANGE SUMMARY: FY 1998: SBIR Reduction (-\$82K), DD1002, April 1998 Update (+\$614K), FY 1998 BTR Update as of June (+\$1,613K), BTR Update as of September (+\$954K); FY 1999: Revised Economic Assumptions (-\$17K), Civilian Personnel Underexecution (-\$9K), Contract Advisory & Assistance Services (-\$44K), and FFRDC Distribution (-\$48K); FY 2000: Increase to JWID funding (+\$1,804K), Reduction to C4ISR architecture (-\$411K), Funding for Decision Centered Design (-\$200K), NWCF Rates (+\$60K), Reduction to finance higher priority program (-\$178K), Civilian Pay Rates (+\$21K), Non Pay Inflation (-\$124K), and additional Inflation Reduction (-\$8K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

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UNCLASSIFIED

Exhibit R-2a, RDT&amp;E Budget Item Justification (Project X2144)

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FY 2000 President's Budget Estimates  
EXHIBIT R-2a, FY2000 RDT&E, N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4            PROGRAM ELEMENT: 0604707N            PROJECT NUMBER: X2144  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: SEW Engineering

(U) RELATED RDT&E: (SEW) Architecture/Engineering Support program element relates to all Naval C4I related efforts.

D. (U) SCHEDULE PROFILE: Not applicable.

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EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2144

Exhibit R-3 Cost Analysis (page 1)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N				PROGRAM ELEMENT 0604707N					PROJECT NAME AND NUMBER SEW Engineering X2144			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Remarks:												
SEW/C4I Technology Integration	Various	Various	4554							0	4554	4554
Systems A&E and Validation	Various	Various	10101							0	10101	10101
Systems Validation	Various	Various	1034							0	1034	1034
Systems Engineering			1850							0	1850	1850
Operational Requirements	Various	Various		188	TBD	172	TBD		TBD	Cont.	Cont.	Cont.
Systems Design	Various	Various		2659	TBD	2434	TBD		TBD	Cont.	Cont.	Cont.
Technical Standards	Various	Various		841	TBD	769	TBD		TBD	Cont.	Cont.	Cont.
Information Repository/Naval Architecture Database	Various	Various		1876	TBD	1718	TBD		TBD	Cont.	Cont.	Cont.
C4ISR Capabilities	Various	Various		881	TBD	806	TBD		TBD	Cont.	Cont.	Cont.
Subtotal Support	Various	Various	17539	6445		5899			TBD	Cont.	Cont.	Cont.
Remarks												

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2144

Exhibit R-3 Cost Analysis (page 2)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER SEW Engineering X2144			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SEW Engr/JWID	Various	Various	3815	941	N/A	2694	TBD		TBD	Cont.	Cont.	Cont.
Subtotal T&E	Various	Various	3815	941	N/A	2694	TBD		TBD	Cont.	Cont.	Cont.
Remarks												
Subtotal Management												
Remarks												
Total Cost			21507	7386		8593				Cont	Cont.	Cont.

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 EXHIBIT R-2a, FY2000 RDT&E, N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4            PROGRAM ELEMENT: 0604707N            PROJECT NUMBER: X2357  
 PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: Maritime Battle Ctr

(U) COST: (Dollars in Thousands)

PROJECT NUMBER TITLE	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2357 Maritime Battle Center	2,831	8,822	23,915	24,082	24,191	24,212	24,198	24,184	Cont.	Cont.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the Maritime Battle Center (MBC) is to execute the Naval Warfare Innovation Process. The process takes concepts developed by the Strategic Studies Group and approved by the Chief of Naval Operations into Fleet Battle Experiments; conducts preliminary sub-scale experiments and technological demonstrations focused on the advanced engineering and operational system development of systems related to all conflict levels of Littoral Battlespace. The MBC environment is a network centric environment that links the existing "core" Naval facilities to the Marine Corps Warfighting Lab (MCWL), the Joint Battle Center/Federated Battle Lab, and technologists in industry and academia as appropriate. The MBC is essential to the evolution of combat capabilities since it is the engine for validating the new network centric warfare techniques in conjunction with the Sea Based Battle Laboratories (SBBL), Science & Technology (S&T) initiatives and other initiatives that originate with the operating forces. The MBC will support the early and sustained involvement of Joint Warfighters in refining the technology to meet the tactics, techniques, and procedures needed for 2010-2020 Littoral Battlespace. The MBC will have multiple roles since it is a crosscutting organization involved in several facets of concept, platform, weapons, weapon systems and Information Technologies (IT), Information System (IS) and Information Management (IM) systems development and integration. These include collaborative planning, operational experimentation planning and execution, technology transition/acquisition support, systems engineering, and integration, technology assimilation and operational demonstrations.

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EXHIBIT R-2a, FY2000 RDT&E, N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4            PROGRAM ELEMENT: 0604707N            PROJECT NUMBER: X2357  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: Maritime Battle Ctr

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1998 ACCOMPLISHMENT

(U) Funding was redirected to ONR and execution was made by ONR for FY 98.

- (U) (\$280) MBC Administration and Management - The management and administration of MBC activities includes oversight of the experimental planning phase, the execution and collection phases, the analysis phase, and the output decision phase. This entails the integration of many preliminary experiments and technology demonstrations coupled with the inputs of experienced military leaders, current warfighting CINCs, and technologists from industry and academia.
- (U) (\$760) Enabling Technical Development - Prior to any technology transition to the Project Spaces onboard the Sea Based Battle Labs (SBBL) during a Fleet Battle Experiment (FBE), the technology needs preliminary engineering experimentation to determine its compatibility and compliance with the Global Command and Control System (GCCS) architectures, IT-21 architectures, and the identification of high performance and interoperability issues. The objectives of these preliminary experiments is to bring information superiority to Fleet operations while achieving a level of critical mass in the early identification of technologies with "production" potential. These technologies include commercially developed technologies in collaborative planning, interactive sharing, the correlation of decision data-reducing "decision" time, and the exploration of dynamically managed circuits operating in sea, ground, and/or aerospace domains.
- (U) (\$980) Fleet Battle Experiments (FBE) - The Second and Third Fleets are the designated experimentation lead. Commander Second Fleet (C2F) and Command Third Fleet (C3F) will lead the FBE series and have designated their flagships USS MT.WHITNEY and USS CORONADO as Sea Based Battle Laboratories (SBBL) that will work with the MBC Director in the conduct of the FBEs. This provides the opportunity for the fleet to directly participate in the development of future Navy capabilities and provides a common sense check for the technologist and concept developer. Commander Second Fleet (C2F) executed Fleet Battle Experiment "C" in the Spring of '98 and Seventh Fleet (C7F) will execute "D" during the Fall of '98. For both experiments the Advanced Concepts Site will capture experiment outcomes.
- (U) (\$811) Battle Staff Level Collaboration - The Navy Collaborative Information Technology Initiative (NAVCITI) at Virginia Polytechnic Institute and State University will assist the SPAWAR, Advanced Concepts Site in the planning and execution phases of Fleet Battle experiments and ACS experiments. The assistance

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4            PROGRAM ELEMENT: 0604707N            PROJECT NUMBER: X2357  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support    PROJECT TITLE: Maritime Battle Ctr

will include the conceptualization, design, and implementation of the Naval Virtual Intranet; providing candidate technological solutions in: distributed software development, software quality assessment, prediction methodologies, distributed group collaboration tools, distributed maritime information management, and wireless LANs/WANs. The NAVCITI will participate in selected experiments, analyzing technical information, and making recommendations in support of the Naval Warfare Innovation Process; assist the ACS in developing proposals for follow-on experimentation.

## 2. (U) FY 1999 PLAN:

- (U) (\$978) FBE Analysis and Core Support: The management and administration of MBC activities includes oversight of the experimental planning phase, the execution and collection phases, the analysis phase, and the output decision phase. This entails the integration of many preliminary experiments and technology demonstrations coupled with the inputs of experienced military leaders, current warfighting CINCs, and technologists from industry and academia.
- (U) (\$484) Enabling Technical Development: Prior to any technology transition to the Numbered Fleet Commanders during a Fleet Battle Experiment (FBE) or Limited Objective Experiment (LOE), the technology needs preliminary engineering experimentation to determine its compatibility and compliance with the Global Command and Control System (GCCS) architectures, IT 21 architectures, and the identification of high performance and interoperability issues. The objectives of these preliminary experiments is to bring information superiority to Fleet operations while achieving a level of critical mass in the early identification of technologies with "production" potential. These technologies include commercially developed technologies in collaborative planning, interactive sharing, the correlation of decision data-reducing "decision time, and the exploration of dynamically managed circuits operating in sea, ground, and/or aerospace domains.
- (U) (\$5,896) FBE Direct Experimentation: The Numbered Fleet Commanders are designated experimentation leads for FBEs and LOEs. The Fleet Commander in the AOR where the experiment is held will lead the F|BE series and designate their flagship as Sea Based Battle Laboratories (SBBL) that will work with the MBC Director in the conduct of the FBE. This enables the Fleet to directly participate in the development of future Navy concepts and capabilities and provides the Fleet an opportunity to provide immediate feedback to the technologist and concept developer.
- (U) (\$1,464) Technical Evaluation: MBC will plan and participate in planning by other services and joint commands of exercises and tests that involve the Navy experimentation process. Its core competency will be

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4                      PROGRAM ELEMENT: 0604707N                      PROJECT NUMBER: X2357  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support                      PROJECT TITLE: Maritime Battle Ctr

fleet operations, exercise designs, costing, equipping and exercise analysis and overall evaluations with recommendations for future related activities. The technical operations will also evaluate the results of Advanced Concept Technology Demonstrations (ACTDs), Joint Warrior Interoperability Demonstration (JWIDs), and Joint Battle Center (JBC) activities and determine the most expeditious paths to transition such concepts into actual and sustainable Naval warfighting capability. As promising innovative technologies emerge from the commercial section, the technical operations element will devise insertion strategies for prototypes. Using existing resources, the components needed to provide the required set of capabilities will be generated and brought into operation for testing and analysis purposes. Navy laboratory support from all claimancies will be tasked dependent on the requirements. Knowledge of laboratory capabilities and projected needs of such laboratories will be inherent in this support. Joint exercise support supplied by maritime forces will also be coordinated using this organizational function.

3. (U) FY 2000 PLAN:

- (U) (\$4,887) FBE Analysis and Core Support: The management and administration of MBC activities includes oversight of the experimental planning phase, the execution and collection phases, the analysis phase, and the output decision phase. This entails the integration of many preliminary experiments and technology demonstrations coupled with the inputs of experienced military leaders, current warfighting CINCs, and technologists from industry and academia.
- (U) (\$4,082) Enabling Technical Development: Prior to any technology transition to the Numbered Fleet Commanders during a Fleet Battle Experiment (FBE) or Limited Objective Experiment (LOE), the technology needs preliminary engineering experimentation to determine its compatibility and compliance with the Global Command and Control System (GCCS) architectures, IT 21 architectures, and the identification of high performance and interoperability issues. The objectives of these preliminary experiments is to bring information superiority to Fleet operations while achieving a level of critical mass in the early identification of technologies with "production" potential. These technologies include commercially developed technologies in collaborative planning, interactive sharing, the correlation of decision data-reducing "decision time, and the exploration of dynamically managed circuits operating in sea, ground, and/or aerospace domains.
- (U) (\$13,439) FBE Direct Experimentation: The Numbered Fleet Commanders are designated experimentation leads for FBEs and LOEs. The Fleet Commander in the AOR where the experiment is held will lead the F|BE series and designate their flagship as Sea Based Battle Laboratories (SBBL) that will work with the MBC Director in the conduct of the FBE. This enables the Fleet to directly participate in the development

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4                    PROGRAM ELEMENT: 0604707N                    PROJECT NUMBER: X2357  
   PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support                    PROJECT TITLE: Maritime Battle Ctr

of future Navy concepts and capabilities and provides the Fleet an opportunity to provide immediate feedback to the technologist and concept developer.

- (U) (\$1,507) Technical Evaluation: MBC will plan and participate in planning by other services and joint commands of exercises and tests that involve the Navy experimentation process. Its core competency will be fleet operations, exercise designs, costing, equipping and exercise analysis and overall evaluations with recommendations for future related activities. The technical operations will also evaluate the results of Advanced Concept Technology Demonstrations (ACTDs), Joint Warrior Interoperability Demonstration (JWIDs), and Joint Battle Center (JBC) activities and determine the most expeditious paths to transition such concepts into actual and sustainable Naval warfighting capability. As promising innovative technologies emerge from the commercial section, the technical operations element will devise insertion strategies for prototypes. Using existing resources, the components needed to provide the required set of capabilities will be generated and brought into operation for testing and analysis purposes. Navy laboratory support from all claimancies will be tasked dependent on the requirements. Knowledge of laboratory capabilities and projected needs of such laboratories will be inherent in this support. Joint exercise support supplied by maritime forces will also be coordinated using this organizational function.

B. (U) PROGRAM CHANGE SUMMARY: FY 1998: SBIR Reduction (-\$80K); FY 1999: Revised Economic Assumptions (-\$20K), Civilian Personnel Underexecution (-\$2K); FY 2000: Fund Maritime Battle Center (+\$14.698M), Fund Decision Centered Design (-\$330K), NWC Rate Adjustments (+\$10K), Civilian Pay Rates (+\$5K), Non-Pay Inflation (-\$346K), NAWC Working Capital (-\$2K), and additional Inflation Reduction (-\$23K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

D. (U) Schedule Profile: N/A

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROJECT NUMBER: X2357  
 PROJECT TITLE: Maritime Battle Cen

Exhibit R-3 Cost Analysis (page 1)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Maritime Battle Center X2357			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYS Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal Product Development												
Remarks:												
Subtotal Support												
Remarks												

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROJECT NUMBER: X2357  
 PROJECT TITLE: Maritime Battle Cen

Exhibit R-3 Cost Analysis (page 2)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Maritime Battle Center X2357			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY-99 Cost	FY-99 Award Date	FY-00 Cost	FY-00 Award Date	FY-01 Cost	FY-01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	2551	7844		19028				CONT	CONT	CONT
Subtotal T&E			2551	7844		19028				CONT	CONT	CONT
Remarks												
Program Management	Various	Various	280	978		4887				CONT	CONT	CONT
Subtotal Management			280	978		4887				CONT	CONT	CONT
Remarks												
Total Cost			2831	8822		23915				CONT	CONT	CONT

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Exhibit R-3, Project Cost Analysis (Project X2357)

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 EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4PROGRAM ELEMENT: 0604707N  
 PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2461  
 PROJECT TITLE: Dec Cen Des

(U) COST: (Dollars in Thousands)

NUMBER TITLE	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
X2461 Decision Centered Design	1,637	0	1,062	1,514	1,448	931	879	881	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Decision Centered Design (DCD) program is a 1997 Strategic Studies Group-recommended, CNO-endorsed initiative to establish a Navy process to institutionally examine emerging cognitive concepts and technical advances to support enhanced decision making at all levels of warfighting. Initial DCD methodology, based on previous, successful redesign of USMC Regimental Combat Operations Center (RCOC), leverages existing evaluation and validation capabilities at the existing facilities responsible for design and testing of systems, doctrine and training. The DCD coordination center is an upgrade of existing facilities at SPAWARSYSCEN. Together, they allow DCD to conduct scientific, engineering, training and operational evaluations of decision support requirements for accelerated and consistent deployment Navy wide.

Under this project, initiated in FY 98 as a critical CNO project to support Network Centric Warfare, Information Technology 21 (IT21) and Joint Vision 2010 under PE0303150N Project X2304, an initial DCD process is being refined by prototyping Commander, Joint Task Force (CJTF). Once refined, it will be applied to other difficult decision making such as Naval Fires Control. Enhancements from all efforts are reviewed and coordinated with applicable sponsors, (Director, Surface Warfare (N86) and Program Executive Office, Surface Ships/Theater Air Defense (PEO-SC/TAD) for AADC), program managers and support laboratories throughout the process to facilitate recommendation acceptance and easy integration. DCD orientation courses for acquisition managers and system engineers are being developed to support the process.

System, fleet, doctrine, training and manning partners continue to be identified from other decision support programs, government agencies, and private industry. Coordination examination of cognitive and technical advances highlights better advances for efficient, consistent integration throughout the services. Research needs coordination also provides similar benefits. DCD is applicable to all C2 systems from the National Command Authority (NCA) on down. Its success is paramount to achieving true speed of command.

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4PROGRAM ELEMENT: 0604707N  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2461  
PROJECT TITLE: Dec Cen Des

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 1998 Accomplishment:

- (\$1,637) Performed DCD processes on AADC and CJTF positions; started development of DCD coordination and evaluation facility.

2. (U) FY 1999 Plan:

- (U) BTR in process for \$2488 which will enable continuation of DCD on CJTF; complete development of DCD coordination and evaluation facility; develop DCD training for acquisition managers and systems designers.

3. (U) FY 2000 Plan:

- (U) (\$489) Continue refinement and validation of DCD methodology to integrate emerging advancements into decision support systems, doctrine, training and manning requirements by continuing the DCD process on CJTF and evaluation of DCD recommendations ashore and in Fleet Battle Experiments.
- (U) (\$297) Complete development of DCD training module for System Designers. Explain DCD process, current and near term cognitive and technical techniques and their employment in system design or upgrade.
- (U) (\$276) Conduct evaluation of emerging cognitive concepts and technical advances, such as intelligent software agents, various visual and multimedia stimuli, etc., at the coordination center and associated sites per oversight committee direction and in coordination with other decision support programs, government agencies, and private industry.

B. (U) PROGRAM CHANGE SUMMARY: FY 1998: FY-00 Comparability Adjustments (+\$1,637K). FY 1999: received funding via BTR from PE 0303150N. FY 2000: Funding of Decision Centered Design (+\$2,761K), BSO Submission/Realignment (-\$29K), C4I RDT&E,N Expenditure Carryover (-\$1,000K), Joint C4ISR Battle Center Shortfall (-\$670K), NWCF Rate Adjustment(+\$12K), Civilian Pay Rates (+\$4K), Non-Pay Inflation (-\$15K) and additional Inflation Reduction (-\$1K).

C. (U) OTHER PROGRAM FUNDING SUMMARY:

	FY1998	FY1999	FY2000
O&M,N PE0204662N/1C1C (Partial)	0	0	339

(U) RELATED RDT&E: Not applicable.

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DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4PROGRAM ELEMENT: 0604707N  
PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2461  
PROJECT TITLE: Dec Cen Des

D. (U) SCHEDULE PROFILE: Not applicable.

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2461

Exhibit R-3 Cost Analysis (page 1)									Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/4			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Decision Centered Design X2461			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total Pys Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Engr.	SS/FF	Multiple	0	N/A	0	791	N/A			Cont	Cont	Cont
System Engr	N/A	SSC SD	0	N/A	0	271	N/A			Cont	Cont	Cont
Subtotal Product Development						1062				Cont	Cont	Cont
Remarks:												
Subtotal Support												
Remarks												

EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2461

Exhibit R-3 Cost Analysis (page 2)										Date: January 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/4				PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Decision Centered Design X2461			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal T&E													
Remarks													
Subtotal Management													
Remarks													
Total Cost							1062				Cont.	Cont.	Cont.
Remarks													

UNCLASSIFIED  
 FY 2000 President's Budget Estimates  
 EXHIBIT R-2a, FY 2000 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4PROGRAM ELEMENT: 0604707N  
 PROGRAM ELEMENT TITLE: SEW Architecture/Eng Support

PROJECT NUMBER: X2630  
 PROJECT TITLE: Adv Comm Info  
 Tech

(U) COST: (Dollars in Thousands)

NUMBER TOTAL TITLE COMPLETE PROGRAM	FY 1998 ACTUAL	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO
X2630 Adv Comm Info CONT. Tech	0	1,995	0	0	0	0	0	0	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project will support the Navy's effort at creating an initiative for integrating information technology (IT).

(U) PROGRAM PLAN:

1. (U) FY 99 PLAN:

- Creation of a virtual environment room that allows Naval Planners and Naval Training Personnel to plan and rehearse missions; investigate the utility of wireless communications; smart antenna technology as well as evaluating candidate radiating elements.

B. (U) PROGRAM CHANGE SUMMARY: FY 1999: Revised Economic Assumptions (-\$5K).

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E: Not applicable.

D. (U) SCHEDULE PROFILE: Not applicable.



EXHIBIT R-3, FY 2000 RDT&E,N COST ANALYSIS  
 FY 2000 President's Budget Estimates

DATE: FEBRUARY 1999

BUDGET ACTIVITY: 4

PROGRAM ELEMENT: 0604707N

PROJECT NUMBER: X2630

Exhibit R-3 Cost Analysis (page 2)										Date: FEBRUARY 1999		
APPROPRIATION/BUDGET ACTIVITY RDT&E, N/4				PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER Adv. Comm Info Tech X2630		
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY99 Cost	FY99 Award Date	FY00 Cost	FY00 Award Date	FY01 Cost	FY01 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management												
System Test and Evaluation												
Systems Engineering												
Interoperability Requirements												
Subtotal T&E												
Remarks												
Subtotal Management												
Remarks												
Total Cost												