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From: Department of the Navy Deputy Chief Information Officer (Navy)

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Subj: NAVY ENTERPRISE ARCHITECTURE AND DATA STRATEGY (NEADS) POLICY

- Ref:
- (a) Secretary of the Navy Memorandum, 21 November 2006, Subj: Designation of the Department of the Navy Deputy Chief Information Officer (Navy)
 - (b) USC Code 44, Chapter 36 (Public Law 104-106, Clinger-Cohen Act, 1996)
 - (c) OMB Circular No. A-130, 28 November 2000; Subj: Management of Federal Information Resources
 - (d) DODD 8100.1, 19 September 2002, Subj: Global Information Grid (GIG) Overarching Policy
 - (e) DOD CIO Memorandum, 9 May 2003; Subj: DOD Net-Centric Data Strategy
 - (f) DODD 8320.2, 2 December 2004; Subj: Data Sharing in a Net-Centric Department of Defense
 - (g) DOD 8320.02-G, 12 April 2006; Subj: Guidance for Implementing Net-Centric Data Sharing
 - (h) SECNAVINST 5000.36A, 19 December 2005; Subj: Department of the Navy Information Technology Applications and Data Management
 - (i) GAO Report, August 2006; Subj: Enterprise Architecture --- Leadership Remains Key To Establishing and Leveraging Architectures for Organizational Transformation
 - (j) Department of the Navy Information Management and Information Technology Strategic Plan, FY 2006-2007
 - (k) Chief of Naval Operations and Commandant of the Marine Corps Guidance, February 2005; Subj: FORCENet: A Functional Concept for the 21st Century
 - (l) Deputy Chief of Naval Operations Memorandum, 27 May 2005; Subj: FORCENet Requirements/Capabilities and Compliance (FRCC) Policy
 - (m) ASN(RD&A) Memorandum, 14 July 2005; Subj: Promulgation of Department of the Navy Policy for the Acquisition Community Support to Implement FORCENet Capabilities
 - (n) Secretary of the Navy Instruction 5000.2D; Subj: Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System
 - (o) Department of the Navy (DON) Acquisition and Capabilities Guidebook
 - (p) Deputy Chief of Naval Operations Memorandum, 23 December 2005; Subj: Requirement for Open Architecture (OA) Implementation
 - (q) ASN(RD&A) Memorandum, 5 August 2004; Subj: Naval Open Architecture Scope and Responsibilities

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- (r) PEO(IWS) Memorandum, 5 July 2006; Subj: Open Architecture Contract Guidebook for Program Managers
- (s) Chief of Naval Operations Guidance for 2007, 2 February 2007; Subj: Focus on Execution

1. Purpose. To align Navy programs and initiatives to a Navy Enterprise Architecture and Data Strategy (NEADS), to ensure compliance with DON and DOD guidance and to enhance mission efficiency and effectiveness.

2. Applicability. This policy is directive to all Navy organizations, and applies to all Navy Information Technology¹ (including National Security System)² programs, projects and initiatives that result in systems, capabilities, data, and/or processes.

3. Scope. This policy includes all in-process and future Navy architecture development efforts, including associated standards and data strategy efforts, developed under or incident to IT (including NSS) programs, projects, capabilities, systems, and initiatives. This includes all Navy developed/funded architecture efforts that support Navy/DON/DOD mission-level architectures.

4. Background

a. Reference (a) designated the Deputy Chief of Naval Operations for Communications Networks (N6) to serve in an additional capacity as the Department of the Navy Deputy Chief Information Officer (Navy) (DDCIO(N)), and tasked DDCIO(N) with ensuring the development, implementation and maintenance of necessary architecture products and associated standards that are consistent with DON, DOD, and Federal architectures.

b. References (b) through (d) mandate establishment and use of an Enterprise Architecture (EA) and a Capital Planning and Investment Control (CPIC) process. References (e) through (h) provide guidance for the implementation of a complementary and supporting Data Strategy (DS). Reference (h) additionally established DON policy to implement a net-centric applications and data architecture using Service Oriented Architecture (SOA)³ to enable access to the right information, at the right time, in the right format.

¹ Reference (b) defines Information Technology as any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. It includes computers, ancillary equipment, software, firmware, and similar procedures, services (including support services), and related resources.

² Reference (b) defines National Security System as any telecommunications or information system operated by the United States Government, the function, operation, or use of which: (A) involves intelligence activities; (B) involves cryptologic activities related to national security; (C) involves command and control of military forces; (D) involves equipment that is an integral part of a weapon or weapons system; or (E) is critical to the direct fulfillment of military or intelligence missions.

³ Reference (h) states that Service Oriented Architecture (SOA) expresses a software architectural concept that defines the use of Extensible Markup Language (XML) and web services to support the requirements of net-centric data sharing. In an SOA environment, nodes on a network make resources available to other participants in the network as independent services that the participants access in a standardized way. SOA represents a collection of best practices principles and patterns related to service-aware, enterprise-level, distributed computing.

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c. Reference (i) cites the required use of EA⁴, and states that a well-defined architecture is an essential tool for leveraging Information Technology (IT) to transform business and mission operations. It advises that attempting to modernize and evolve IT environments without an architecture to guide and constrain investments results in operations and systems that are duplicative, not well integrated, costly to maintain, and inefficient in supporting mission goals.

d. Reference (j) states that FORCEnet is an integral part of Information Management (IM) and Information Technology (IT), and will integrate business systems and National Security Systems (warfighting systems) into a seamless interoperable environment. Reference (k) provides Navy and Marine Corps overarching guidance for development of a FORCEnet Integrated Architecture (FIA), and requires an SOA approach. Reference (l) includes FIA as part of FORCEnet requirements/capabilities established to ensure applicable Navy programs, systems, and initiatives are compliant with the principles of Net-Centric Operations/Warfare (NCOW) and are aligned with the Global Information Grid (GIG). Reference (m) implements FORCEnet and FIA in the Acquisition Community. References (n) and (o) implement FORCEnet enterprise-wide in the Department of the Navy.

e. Reference (p) established Navy requirements for Open Architecture (OA). References (q) and (r) implement OA in the Acquisition Community. Reference (s) provides Navy objectives for 2007, including accelerated delivery of OA systems to the Fleet.

5. Discussion.

a. EA, with associated Standards and supporting Data Strategy, provides the critical overarching framework for aligning programs, projects, systems, capabilities, and initiatives, as well as their related efforts.

(1) EA allows architecture descriptions to be compared and related across organizational boundaries, including across Joint and multi-national boundaries. It is an essential management tool for using IT to guide both warfighting and business operations toward enhanced NCOW.

(2) Data Strategy (DS) complements and supports EA, providing portfolio management that addresses the physical implementation of data and associated data interfaces in support of mission area domains as well as associated systems and applications.

(3) EA, operating in concert with DS and key processes such as CPIC, is vital to supporting management decisions and actions regarding investment in IT, sharing information, reducing costs, establishing effective governance, conveying and assessing requirements/capabilities, achieving Information Assurance (IA), conducting Modeling and

⁴ Reference (b) states Enterprise Architecture: (A) means (i) a strategic information asset base, which defines the mission; (ii) the information necessary to perform the mission; (iii) the technologies necessary to perform the mission; and (iv) the transitional processes for implementing new technologies in response to changing mission needs; and (B) includes (i) a baseline architecture; (ii) a target architecture; and (iii) a sequencing plan. Reference (l) defines Enterprise Architecture as a blueprint that describes the current and desired state of an organization or functional area in both logical and technical terms, as well as a plan for transitioning between the two states.

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Simulation (M&S), and enhancing Joint/Inter-Agency/Multi-National interoperability. An authoritative EA and DS improve both warfighting and business operations across the entire spectrum of Doctrine, Organization, Training, Material, Leadership and education, Personnel, and Facilities (DOTMLPF). EA and DS together provide a foundation for CPIC.

(4) EA facilitates alignment of the IT infrastructure; for the Navy and Department of Defense (DOD), this IT infrastructure is represented by the GIG. Navy DS will enable realization of Net-Centric Data Sharing, the management component of the GIG.

b. SOA, through the creation and leveraging of shared services, facilitates acceleration of system development, reduction of system infrastructure, and enhancement of system capability and interoperability.

c. Navy architectures, as well as those of the other Services and DOD organizations, are listed in the DOD Architecture Registry System (DARS).

d. Approved Navy and DOD IT standards are listed in the DOD IT Standards Registry (DISR). DISR lists the minimal set of IT/NSS standards adopted by Service, Agency, and Combatant Commander consensus to enable Joint/Combined Interoperability and to support NCOW.

6. Roles and Responsibilities.

a. Pursuant to reference (a), DDCIO(N) will serve as the Navy Chief Architect, ensuring the development, implementation and maintenance of necessary architecture products and associated standards and supporting data strategies that are consistent with DON, DOD, and Federal policy and guidance. DDCIO(N) is responsible for establishing Navy policy regarding architectures, including associated standards and supporting data strategy, and for the enforcement of that policy in all Navy programs and initiatives. DDCIO(N), in coordination with cognizant DCNOs as appropriate, will prioritize resources for all Navy architecture and DS developments, ensuring they are targeted to priority needs. DDCIO(N) will charter and chair a Navy Information Technology Management (ITM) Council to exercise implementation and oversight of this policy. DDCIO(N) reports directly to the DON CIO, and will represent the Navy and the ITM Council on the Department of the Navy's Information Executive Committee (IEC).

b. Director, Fiscal Affairs and Information Technology Governance (OPNAV N61) will act on behalf of DDCIO(N), serving as DDCIO(N) lead for NEADS Policy, representing DDCIO(N) in all matters regarding architectures, standards, and data strategies, and chairing the Navy ITM Council in the absence of DDCIO(N).

c. The Navy ITM Council will support the DDCIO(N) and the mission and vision of the Navy by ensuring the development and enforcement of appropriate IT architecture (and associated standards and supporting data strategy) policy and governance across the Navy.

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7. Policy. This memorandum forms the initial serial in a planned series of DDCIO(N) directives to execute full establishment of a NEADS Policy. Initial NEADS Policy elements are as follows:

a. A Navy-wide EA, with associated standards and complementary/supporting DS, will be developed commencing this fiscal year. It will be aligned to the GIG via the Net-Centric Operations Warfare Reference Model (NCOW RM), and will extend across all Mission Areas (and associated Domains) of the GIG: Warfighting, Business, Enterprise Information Environment (EIE), and Intelligence. It will provide an end-to-end description of the planned “to be” state of the Navy, establishing a single integrated and authoritative basis for future Navy planning (including IA and M&S) and investment decisions.

b. All Navy IT programs, projects, systems, capabilities, and initiatives will be aligned with the Navy EA and DS. Where the Navy EA or applicable mission area architecture has not yet been approved, “non-conflicting” will be accepted as “compliant.” Data Strategy compliance will be achieved through implementation of reference (h) data/database portfolio management processes and procedures which will further address the net-centric data sharing goals of references (e) through (g).

c. All in-process and future Navy architectures (including associated standards and data strategies) which are developed under or incident to Navy IT programs, projects, systems, capabilities, or initiatives, will be compliant with the Navy EA and DS. This includes all Navy-developed and Navy-funded mission-level architectures and all Navy-developed and Navy-funded architectures used in the Naval Capabilities Development Process (NCDP), Joint Capabilities Integration and Development System (JCIDS), and Information Support Plan (ISP) processes. Full consistency will be achieved via federation or integration with the Navy EA and DS. No Navy architectures will be registered in DARS without prior approval via the NEADS governance structure as defined by the Navy ITM Council.

d. Navy EA and DS will serve as a foundation for all Navy IT system assessments, System-of-System engineering functions, IA and M&S planning, and all resource, requirements/capabilities and acquisition decisions.

e. All Navy IT standards will be aligned to the Navy EA and DS, and will be coordinated with the Navy IT Standards Working Group prior to submission to the DOD IT Standards Committee for inclusion in the DISR.

f. Navy will implement the DOD Net-Centric Data Strategy (NCDS) through reference (h) as part of the NEADS process. Navy data owners and organizations will ensure their data is visible, accessible, understandable, and trusted in order to support manual and automated publish/subscribe data interfaces. Navy data standards will be coordinated with the cognizant Functional Data Manager (FDM), DDCIO(N), and DON CIO prior to inclusion in the DOD Metadata Registry (MDR). Navy Programs of Record (PORs) will participate in relevant Navy, DON, Joint, and Inter-Agency Communities of Interest (COIs) to support the data management activities of reference (h).

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g. The Navy will leverage shared services and Service Oriented Architecture (SOA), accelerating Navy implementation of SOA. Navy programs, projects, systems, capabilities, and initiatives will pursue a SOA approach to the maximum extent feasible, ensuring services are visible, accessible, understandable and trusted by using authoritative data sources identified by the Functional Data Managers (FDMs) and by maximizing the use of core services provided by DISA's Net-Centric Enterprise Services (NCES) (i.e., NCES Service Oriented Architecture Foundation, Content Discovery, and Delivery services) as well as services from other authoritative sources.

h. Pursuant to reference (s), all Navy programs, projects, systems, capabilities, and initiatives will expedite implementation of Open Architecture (OA) principles in order to accelerate delivery of OA systems to the Fleet. Per reference (p), the five OA principles are: (1) Modular design and design disclosure; (2) Reusable application software; (3) Interoperable joint warfighting applications and secure information exchange; (4) Life cycle affordability; (5) Encouraging competition and collaboration through development of alternative solutions and sources.

i. A Navy-wide NEADS governance process, and supporting enforcement mechanisms, will be established to ensure compliance with this policy.

j. No Navy funds will be expended for Navy programs, projects, systems, capabilities, or initiatives, or for related architecture, standards, or data strategy efforts, which are not in compliance with this policy without the express approval of DDCIO(N). Navy programs, projects, systems, capabilities, and initiatives that are not in compliance with this policy will have their funding withheld.

8. Implementation

a. The Navy EA and DS will be developed, implemented and maintained in building-block, capability module increments.

b. Resources across the entire Navy enterprise will be reviewed by the Navy ITM Council for use in development and governance of the Navy EA and DS. A primary resource for consideration will be the baseline FIA which was developed under reference (k) and which is currently registered in DARS.

c. The Navy enterprise will materially support the development of a Navy EA and DS.

9. Compliance

a. The Navy ITM Council will oversee development of NEADS compliance criteria and a supporting governance process, and will recommend them to DDCIO(N) for approval in time for their establishment Navy-wide by the end of Fiscal Year 2008. The ITM Council will additionally be the senior authoritative forum for final assessment of NEADS compliance in Navy programs, projects, systems, and initiatives.

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b. Commencing in Fiscal Year 2009, all Navy programs, projects, systems, capabilities, and initiatives are required to report a self-assessment of their status regarding NEADS compliance criteria as part of their Navy Program Reviews, POM/PR/Funding Reviews, and Milestone Reviews. Programs will develop transition plans for NEADS compliance areas not achieved. Waivers may be granted only by DDCIO(N).

(1) NEADS Compliance will be a key element of Program Reviews conducted by DCNO (N6) as part of the Program Objective Memorandum (POM) process.

(2) NEADS Compliance will be a key criteria assessed under the FORCENet Compliance Certification process conducted by DCNO (N6) as part of the Navy JCIDS review process conducted in accordance with references (l), (n) and (o).

(3) NEADS Compliance will be a primary element in interoperability reviews conducted by DCNO (N6) under Navy Capabilities Board (NCB) and Resource Requirements Review Board (R3B) processes.

b. The Navy's CPIC effort will establish processes for analyzing, selecting, managing, controlling, and evaluating all Navy IT investments. CPIC will serve as an additional NEADS enforcement mechanism, using NEADS policy and compliance elements as core investment criteria along with business case analysis in the selection and control of Navy IT.

10. Action.

a. Director, Fiscal Affairs and Information Technology Governance (OPNAV N61) shall:

(1) Lead implementation and update of this policy, in coordination with cognizant Navy, Marine Corps, and DON forums and organizations;

(2) Develop a proposed Charter for the Navy ITM Council, and provide it to DDCIO(N) for approval and promulgation;

(3) Establish the Navy ITM Council on behalf on DDCIO(N), and chair the Navy ITM Council in the absence of DDCIO(N);

(4) In consultation with DDCIO(N), the ITM Council, and the DON Enterprise Architecture Coordination Board (EACB), lead the following efforts:

(a) Establish a Navy Operational Architect, a Navy System/Technical Architect, and a Navy Data Architect;

(b) Develop a Navy EA governance structure and process, to include implementation of a supporting DS consistent with reference (h);

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- (c) Develop a standardized set of architecture development/approval criteria;
- (d) Develop NEADS compliance criteria for use by Navy programs, projects, systems, capabilities, and initiatives to assess and improve their compliance status;
- (e) Develop planning for management of Navy program, project, system, capabilities, system-of-systems, and mission architectures, including alignment of existing Navy/DON architecture and data efforts;
- (f) Identify resource requirements necessary to implement this policy, and recommend to DDCIO(N) the sources and planning for allocation of these resources;
- (g) Develop, in coordination with the DON SOA Transformation Group, a strategy for accelerating implementation of SOA in the Navy. Include planning for Navy programs to participate in Joint SOA development activities;
- (h) Develop, in coordination with OPNAV N8, a strategy for further accelerating implementation of OA in Navy programs;
- (i) Develop, in coordination with OPNAV N8, a plan for DDCIO(N) to prioritize architecture development efforts in the Navy and to align Navy resources to this prioritization;
- (j) Support DON CIO in the development of a Net-Centric Data Transformation Plan which will define the process for establishment of and participation in Navy, DON, and Joint Communities of Interest (COIs);
- (k) Investigate potential establishment of a common architecture development environment for the Navy, to increase Navy cross-domain/cross-organizational coordination and to reduce Navy costs;
- (l) Investigate, in coordination with the FORCENet Chief Engineer, potential development and use of an automated tool to support assessment and enforcement of NEADS compliance in Navy programs;
- (m) Develop metrics to measure the implementation and effect of this policy. Include the use of an architecture management maturity framework such as the model recommended in reference (i);
- (n) Develop a POA&M for implementation of this policy, including a timeline projecting when key EA and DS products will be released to Navy PORs;
- (o) Develop a NEADS Implementation Guide, to assist Navy Program Managers and organizations in execution of this policy.

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(5) Coordinate with ASN(RD&A), via DON CIO and the DON Enterprise Architecture Coordination Board (EACB), to implement this policy in the Acquisition Community;

(6) Coordinate with the Fleet Warfare Enterprises (FWEs), via the Naval NETWARS FORCENet Enterprise (NNFE), to implement this policy in the Fleet;

(7) Coordinate with DON Deputy CIO (Marine Corps), via DON CIO and the DON EACB, to support consistency of NEADS Policy implementation with Marine Corps planning and with DON planning;

(8) Develop and implement the Navy's CPIC process based on principles of this policy;

(9) Participate in Navy, DON, Joint, and Interagency COIs;

(10) Implement this policy in the FORCENet Requirements/Capabilities and Compliance (FRCC) process, including in the DCNO(N6) FORCENet Certification of JCIDS documents and in FRCC Flag Board reviews;

(11) Update reference (l) to reflect this policy, and provide it to DCNO(N6) for approval and promulgation;

(12) Coordinate with OPNAV N6F, OPNAV N8, and cognizant DCNOs to implement this policy in the NCDP and related POM/PR/PPBE processes;

(13) Transition appropriate elements of this policy to the next update of references (n) and (o);

(14) Transition this policy, in coordination with DON CIO and DON Deputy CIO (Marine Corps), to a DON policy.

b. Director, Warfighting Integration (OPNAV N6F) shall support OPNAV N61 in the implementation of this policy.

c. OPNAV Resource and Program Sponsors shall ensure that future Navy-developed JCIDS documents reflect this policy.

d. All Navy Program Managers, and all managers of Navy-developed and/or Navy-funded programs, projects, systems, capabilities, and initiatives, shall report their status in achieving NEADS compliance at each Program Review, POM/PR/Funding Review, Milestone Review, and JCIDS review, and shall present a transition plan for implementation of NEADS elements not yet achieved.

e. All Navy organizations are responsible for adhering to the provisions of this policy. This includes:

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- (1) All Navy organizations responsible for the development, acquisition, and/or fielding of Navy programs, projects, systems, capabilities, or initiatives;
- (2) All Navy organizations responsible for in-process and/or future Navy architecture development efforts, including associated standards and supporting data strategy efforts, developed under or incident to these programs, projects, systems, capabilities, and initiatives. This includes all organizations using Navy-developed and/or Navy-funded mission-level architectures.

11. Point of Contact. My Point of Contact for this policy is Mr. Peter Blackledge (OPNAV N6112E), who can be reached at peter.blackledge@navy.mil.

12. Cancellation Contingency. This policy shall be retained until full development and establishment of NEADS policy is completed and has been transitioned to a DON policy.



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