16Jun94 ND

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, DC 20350-2000

26pages

IN REPLY REFER TO

OPNAVINST 9410.6
N65
13 July 1993

OPNAV INSTRUCTION 9410.6

From: Chief of Naval Operations

Subj: NAVAL WARFARE TACTICAL DATABASE (NWTDB) REQUIREMENTS FOR TACTICAL NAVAL WARFARE SYSTEMS

Ref: (a) DOD Directive 8320.1 of 26 Sep 91, "DOD Data Administration" (NOTAL)
(b) DOD Manual 8320.1-M-1 of 15 Jan 93, "DOD Data Element Standardization Procedures" (NOTAL)
(c) DOD Directive 4630.5 of 12 Nov 92, "Compatibility, Interoperability and Integration of Tactical Command, Control, Communications and Intelligence (C3I) Systems" (NOTAL)
(d) OPNAVINST 9410.5, "Database and Communication Standards Interoperability Requirements for Tactical Naval Warfare Systems" (NOTAL)
(e) SECNAVINST 5400.15 of 5 Aug 91, "Department of the Navy Research, Development, and Acquisition Responsibilities" (NOTAL)
(f) SECNAVINST 5000.2A of 9 Dec 92, "Implementation of Defense Acquisition Management Policies, Procedures, Documentation, and Reports" (NOTAL)
(g) OPNAVINST 5000.42D of 19 Apr 93, "OPNAV Role and Responsibilities in the Acquisition Process" (NOTAL)
(h) NWTDB Management Plan of Sep 92 (NOTAL)
(i) OPNAVINST 3430.23B of 12 Jun 92, "Tactical Electronic Warfare Reprogrammable Library Support Program" (NOTAL)
(j) OPNAVINST 3140.54 of 3 Nov 86, "Submission of Oceanographic and Meteorological Requirements" (NOTAL)
(k) OPNAVINST 3140.55 of 5 Mar 87, "Submission of Requirements for Mapping, Charting, and Geodesy (MC&G) Products and Services" (NOTAL)

Encl: (1) Definitions
(2) NWTDB Reference Database Production Architecture
(3) Interim NWDTB User Feedback/Requirements Report

1. Purpose. To establish responsibilities and procedures for evolving to a common tactical database architecture that supports naval, joint, and combined operations. Specifically, to:

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a. Implement Command, Control, Communications, and Intelligence (C^3I) data administration and systems interoperability requirements in accordance with references (a) through (c);

b. Provide a management framework for Navy to resolve data interoperability issues which impact tactical naval warfare;

c. Designate Functional Database Managers (FDBMs) and specify their duties; and

d. Reduce long term naval warfare system acquisition costs by evolving to a joint and theater compatible information architecture which will be applied to both the requirements and engineering processes.

2. Supercession. The guidance in this instruction supersedes guidance found in reference (d) regarding NWTDB. All other provisions of reference (d) remain in effect until canceled or superseded by other means.

3. Scope/Applicability. This policy is issued in accordance with, and in amplification of, references (e) through (g). It applies to all organizations acquiring and supporting Tactical Naval Warfare Systems (TNWSs) and associated database production, including those organizations acquiring systems under rapid prototyping and fleet initiative programs.

4. Definitions. Terms used in this instruction are defined in enclosure (1).

5. Background

a. Systems involved in warfare and warfare support must be able to exchange data. Incompatible data definitions, naming conventions, and structures make this difficult. Program managers are forced to develop and maintain unique databases with specialized interface design specifications to other systems because data standardization efforts have been fragmented, community specific, and inadequate. This is neither operationally effective nor cost efficient.

b. The Department of Defense Corporate Information Management (CIM) effort was initiated in 1990 to reduce acquisition costs. CIM is chartered to develop Department of Defense process models, data models, and information systems, and to standardize the computing and communications infrastructure of DOD. A primary CIM objective is to develop a single DOD data element dictionary

to improve interoperability among systems and facilitate data exchanges. The Defense Information Systems Agency (DISA) is developing the Defense Data Repository System (DDRS) to support this effort. DOD components are directed to participate in the process as described in references (a) and (b). Per reference (a), applicable Federal, national, and international data standards are preferred over unique DOD standards. Thus, where Navy or DOD develops unique standards, future modifications will be necessary to evolve to higher-precedence standards once available. NWTDB provides the management framework for achieving this evolution for Navy tactical data standards once approved joint standards are available.

c. The Joint "C^4I for the Warrior" and Navy "Copernicus" efforts set forth concepts, unifying themes, and principles for achieving C^4I interoperability that is global, reliable, secure, affordable, and responsive to warfare operations. Interoperable databases and data standardization are essential to achieving the common systems processing required to support these objectives.

d. The concept for achieving tactical data interoperability is contained in reference (h). This concept includes NWTDB reference database production as depicted in enclosure (2), as well as data requirements and Navy C^3I data administration.

6. Policy

a. Reference (a) requires that information be treated as an asset directly accessible throughout an organization. Effective data administration provides the means to share data, control redundancy, minimize data handling, and improve data integrity.

b. All Navy system developers and database producers will transition to NWTDB data standards and structures by the year 2000. At present, NWTDB includes only a minimum baseline of data standards. Additional data elements or data sets required for tactical naval warfare may be developed by or in coordination with system developers as candidate DOD standards. This includes the data elements required to support modeling and simulation, as well as training. Chief of Naval Operations (N6) and Office of Naval Intelligence (ONI-73) will provide management support to assist developers in this endeavor.

c. It is the responsibility of system sponsors and developers to plan and budget for the evolution of existing systems to approved joint and Navy standards. Navy C^3I baseline data standards will be derived from existing data element formats and definitions by Functional Database Managers (FDBMs) in

cooperation with system developers. These formats, in turn, will be coordinated with joint standards managers as described in reference (b). In the long term, NWTDB will reduce both software development and maintenance costs. A phased integration of functional data standards using budgeted funds through normal configuration management is less expensive than proliferation of unique data formats, with translators for each new application. System milestone reviews shall address data interoperability.

d. The NWTDB process refocuses existing resources to:

(1) Identify and integrate user and system data requirements,

(2) Register existing Tactical Naval Warfare System (TNWS) data elements to use in baseline standards,

(3) Institute and manage Navy-approved C^3I data standards, and submit these as, or evolve to, joint data standards,

(4) Implement approved standards in all TNWSs, and

(5) Provide consistent, authoritative tactical reference data.

e. NWTDB policy execution does **not**:

(1) Dictate hardware or software for systems use,

(2) Dictate which standard data elements to implement,

(3) Dictate system applications, or

(4) Dictate internal system data handling.

7. Responsibilities

a. Director of Space and Electronic Warfare (N6) will:

(1) Act as the Chief of Naval Operations' (CNO) point of contact for C^3I data administration and information technology issues. Provide overall management and direction for NWTDB.

(2) Coordinate and submit Navy position and submit recommendations to DOD agencies regarding integrated C^3I interoperability standards. Positions will be submitted via the Navy data administrator when required by SECNAV instruction.

(3) Integrate Navy configuration management of C^3, Combat, and Intelligence data standards (Database, Message Text Formats, and Tactical Data Information Links).

(4) Prepare a Configuration Management Plan for detailed instruction on submission of requirements and approval process of candidate data elements.

(5) Plan, program, and budget adequate resources to ensure Navy command and control systems implement Joint and Navy C^3I data standards.

b. Director of Naval Intelligence (N2) will:

(1) Manage for the CNO the submission and status of Tactical Naval Warfare Systems intelligence production requirements to Commanders in Chief and agencies.

(2) Support N6 in Navy C^3I data administration and data element harmonization.

(3) Plan, program, and budget adequate resources to ensure Navy General Defense Intelligence Program and Tactical Cryptologic Program systems implement Joint and Navy C^3I data standards.

c. Oceanographer of the Navy (N096) will:

(1) Manage for the CNO the coordination and submission of TNWS mapping, charting, and geodesy requirements to the Defense Mapping Agency (DMA); and meteorology, oceanography, and astrometry requirements.

(2) Support N6 in Navy C^3I data administration and data element standardization.

(3) Plan, program, and budget adequate resources to ensure Navy environmental systems implement Joint and Navy C^3I data standards.

d. Deputy Chief of Naval Operations for Resources, Warfare Requirements, and Assessments (N8) will:

(1) Ensure Navy modeling and simulation systems use NWTDB standards and structures.

(2) Support N6 in Navy C^3I data administration and data element standardization.

(3) Use NWTDB format in production and maintenance of U.S. Navy weapons systems, and for platform characteristics and performance data to meet the needs of wargaming and implementation on TNWSs.

e. CNO Resource and Program Sponsors will:

(1) Submit existing TNWS data element formats and definitions to the Office of Naval Intelligence for registration and consolidation into candidate DOD standards.

(2) Ensure new or upgraded systems use NWTDB standards and structures, and that existing systems transition by the year 2000, unless systems have been specifically given exemptions by N6.

f. System Development Managers (Systems Commands, Program Executive Officers, and Direct Reporting Program Managers) will:

(1) Coordinate the implementation of NWTDB in TNWSs through the Force Warfare Systems Engineering Board.

(2) Prepare implementation plans to support the requirements of this instruction within their commands.

(3) Designate a single point of contact for external coordination of data standardization issues.

(4) Provide existing TNWS data element definitions and formats to ONI for registration in NWTDB.

g. Office of Naval Intelligence (ONI) will:

(1) Act as the NWTDB Standards and Structure Administrator for CNO (N6).

(2) Register TNWS data elements in the NWTDB Systems Information Directory, and coordinate preparation of candidate joint standards for submission to the DISA Defense Data Repository System (DDRS) for approval as joint standard data elements.

(3) Identify conflicting, redundant, or required production of data and recommend solutions to CNO (N6).

(4) Coordinate data set design and dissemination of the NWTDB Standards and Structures Manual.

(5) Develop and manage NWTDB dissemination procedures with the FDBMs, including maintenance of a master list of users and holdings.

(6) Coordinate the NWTDB configuration management process, to include review of submitted data elements for technical accuracy.

h. Navy FDBMs (listed in paragraph 7i below) will:

(1) Coordinate NWTDB data set structure design with ONI, to comply with reference (b) standards.

(2) Disseminate data in accordance with NWTDB data element format and data set structures. The common medium for file dissemination between database producers and users will be American Standards Code for Information Interchange (ASCII) unless all parties agree upon a substitute coding format which is approved by ONI. The intent is to evolve to a single, industry compatible, dissemination standard which permits data compression for communication transfer. Enclosure (2) illustrates the projected standard reference database production.

(3) Oversee NWTDB configuration management within their functional area to include functional review of submitted data elements to ensure they meet operational requirements. Produce applicable portion of the NWTDB Standards and Structures Manual in coordination with ONI.

i. Navy NWTDB FDBMs and their areas of concern are as follows:

(1) ONI - Characteristics and performance (C&P) data of non-U.S. equipment and merchant ships,

(2) Commander, Space and Naval Warfare Systems (COMSPAWARCOM) - Provide U.S. Navy C&P data in support of modeling and simulation and TNWSs,

(3) Officer in Charge, Electronic Warfare Operational Programming Facility (EWOPFAC) - Radar parameters data (reference (i) pertains),

(4) Commander, Naval Security Group (COMNAVSECGRU) - Cryptologic (i.e., communications intelligence) data, and

(5) Commander, Naval Oceanography Command (COMNAVOCEANCOM) - Oceanography, meteorology, astrometry, and mapping, charting, and geodesy (references (j) and (k) pertain).

j. Participating non-Navy NWTDB FDBMs are:

(1) Defense Intelligence Agency - Non-U.S. installations, equipment, and order of battle data.

(2) Atlantic Intelligence Command (AIC)/Joint Intelligence Center Pacific (JICPAC) - Theater specific installation, amphibious, lines of communication and order of battle.

k. Navy Center for Tactical Systems Interoperability (NCTSI) will:

(1) Review proposed changes to NWTDB standards and structures for impact on tactical system implementation and interoperability of Tactical Data Information Links and Message Text Format systems.

(2) Monitor compliance with NWTDB standards in conjunction with C4I systems interoperability testing efforts.

l. Fleet Commanders in Chief will:

(1) Identify data standards, structure, fill, or transfer problems/requirements to appropriate FDBM. If it is unclear which FDBM is appropriate, submit requirements to ONI. Enclosure (3) may be used for submission of requirements until a formal configuration management plan is published or electronic submission becomes available.

(2) Ensure TNWSs developed under rapid prototyping and fleet initiative programs incorporate NWTDB standards. Recommend to appropriate FDBM the producer of data where not otherwise assigned.

8. Procedures

a. Reference (b) and the proposed DOD manual 8320.1-M, "Data Administration Procedures", describe procedures to be followed in data administration and data element standardization. These procedures are fully supported and adopted by the NWTDB process.

b. A configuration management plan and an implementation plan are being produced by OPNAV (N6) in support of this instruction. In the interim, enclosure (3) may be used to submit requirements to FDBMs or ONI-73.

9. Report. The reporting requirement contained in enclosure (3) is assigned symbol OPNAV 9410-1 and is approved for three years from the date of this instruction.

JERRY O. TUTTLE

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DEFINITIONS

Sources of definitions are listed where available.

Application Data Element. A data element used in an automated information system. (An application data element may, or may not, be a standard data element.)

Attribute. A property or characteristic of one or more entities; for example, COLOR, WEIGHT, SEX. Also, a property inherent in an entity or associated with that entity for database purposes. (FIPS Pub 11-3)

Corporate Information Management (CIM). The DOD effort to apply computing, telecommunications, and information management capabilities effectively in the accomplishment of the Department mission.

Data. A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. (FIPS Pub 11-3)

Data Administration (DAdm). That function of the organization which oversees the management of data across all functions of the organization, and is responsible for central information planning and control. (NBS Special Pub 500-149)

Data Administrator (DAd). A person or group that ensure the utility of data used within an organization by defining data policies and standards, planning for the efficient use of data, coordinating data structures among organizational components, performing logical database design, and defining data security procedures. (NBS Special Pub 500-152)

Data Attribute. A characteristic of a unit of data such as length, value, or method of representation. (FIPS Pub 11-3)

Data Category. All data sets necessary to define a functional category, e.g., sensors. The number of data sets per category is based on specific data file record capabilities.

Data Content. What goes in a data element as defined by the data element definitions and formats.

Data Dictionary. A specialized type of database containing metadata that is managed by a data dictionary system; a repository of information describing the characteristics of data used to design, monitor, document, protect, and control

data in information systems and databases; and application of a data dictionary system. (FIPS Special Pub 500-152)

Data Element. A named identifier of each of the entities and their attributes that are represented in a database. (FIPS Pub 11-3)

Data Element Standardization. The process of documenting, reviewing, and approving unique names, definitions, characteristics, and representations of data elements according to established procedures and conventions.

Data Element Standards. The standardization and management of data element definitions, formats, content, and relationships between data elements.

Data Entity. An object of interest to the enterprise, usually tracked by an automated system. (NBS Special Pub 500-149)

Data File. All data elements comprising a single table of information relating to a data entity.

Data Fill. The actual data (or lack of) in the data element fields.

Data Merging. The ability to combine data from multiple digitized sources. A prerequisite to computer data merging is deconfliction of data element standards and database structure.

Data Model. In a database, the user's logical view of the data in contrast to the physically stored data, or storage structure. A description of the organization of data in a manner that reflects the information structure of an enterprise. (FIPS Pub 11-3)

(1) **Logical Data Model.** A model of the data stores and flows of the organization derived from the conceptual business model. (NBS Special Pub 500-149)

(2) **Physical Data Model.** A representation of the technologically independent requirements in a physical environment of hardware, software, and network configurations representing them in the constraints of an existing physical environment.

Data Set. A group of data elements that collectively describe a composite object, e.g., platform, weapon, sensor, installation, or other object.

Data Set Structure. A representation of the logical relationships that exist among the data elements comprising the data set. The data set structure defines unique identifiers within the data set, subordinate relationships, repeating or multi-valued occurrences, and coded or constrained elements.

Data Structure. The logical relationships which exist among units of data and the descriptive features defined for those relationships and data units; an instance or occurrence of a data model. (NBS Special Pub 500-152)

Data Translation. The computer conversion of one data element format into another format; e.g., truncation of the 30 character ship name field into a 26 character field for use by a hardware and/or software constrained system.

Database. A collection of interrelated data, often with controlled redundancy, organized according to a schema to serve one or more applications; the data are stored so that they can by used by different programs without concern for the data structure or organization. A common approach is used to add new data and to modify and retrieve existing data. (FIPS Pub 11-3)

Defense Data Repository System (DDRS). The database administered by the Center for Information Management for managing the submission, review, and approval of DOD standard data elements.

Information. Any communication or reception of knowledge such as facts, data, or opinions, including numerical, graphic, or narrative forms, whether oral or maintained in any medium, including computerized databases, paper, microforms, or magnetic tape. (DODD 8000.1 of 27 October 1992 (NOTAL))

Information Architecture. A database schema of information categories (data sets) containing standardized data elements with designated data sources. The information architecture in the NWTDB Data Standards and Structures Manuals is a guide for defining essential elements of information to support operational functionality, and for internal system design to achieve a common relational database. The NWTDB structure is hardware and software independent.

Information Standards. The standardization of data elements, database structure, message text formats, and tactical digital information links.

Information System. The organized collection, processing, maintenance, transmission, and dissemination of information in accordance with defined procedures, whether automated or manual. (DODD 5200.28 of 21 March 1988)

Integrated Database (IDB) - Transaction Format (TF). IDB-TF is a DIA approved, generalized transaction structure which is used to communicate Integrated Database maintenance data between IDB systems.

Interface. A boundary or point common to two or more command and control systems or subsystems, communication systems or equipment, or other entities across which necessary information flow takes place. A joint interface implies that the boundary is shared by two or more services/agencies. A combined interface is shared by entities from one or more U.S. services/agencies and an allied nation.

(1) **Technical Interface.** A specification of the functional, electrical, and physical characteristics necessary to allow the exchange of information between systems. An Interface Requirements Specification (IRS) is used to specify the functional and physical requirements of an interface between systems; DI-MCCR-80026A pertains. An Interface Design Document (IDD) is used to describe the detailed design of the requirements within the IRS; DI-MCCR-80027A pertains. Warfare System Controlled Interface Documents (WSCIDs) are used to describe functional, physical, and electrical interface characteristics.

(2) **Procedural Interface.** A specification for accomplishing exchange of information across an interface; e.g., OPSPEC 411, OPSPEC 516, OPSPEC OTG. A procedural interface defines:

(a) The form or format in which information is to be exchanged.

(b) The prescribed information exchange language, syntax, and vocabulary to be used in the information exchange.

(c) The operating procedures that govern information exchange.

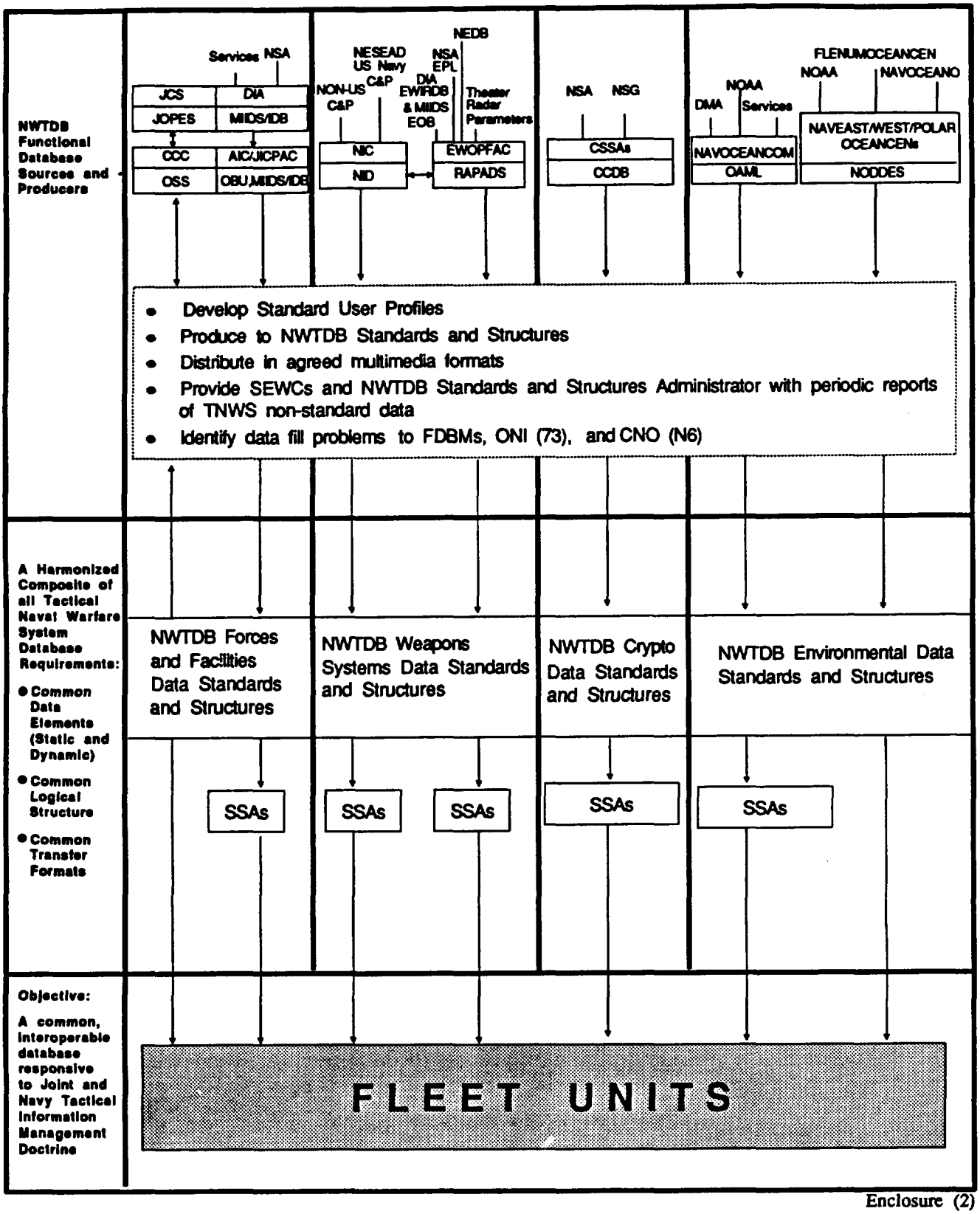
Interoperability. The ability of systems, units or forces to provide services to, and accept services from, other systems, units or forces, and to use the services so exchanged to enable them to operate effectively together (JCS Pub 1).

Naval Warfare Tactical Database (NWTDB). (1) The management process to evolve to the common tactical database that meets the needs of the Composite Warfare Commander and Joint Task Force Commander, supporting naval, joint, and combined operations. (2) The authoritative tactical database, or subsets thereof, distributed by designated producers in accordance with the information architecture contained in the functional volumes which comprise the NWTDB Data Standards and Structures Manuals. Coordination of standards and structure permits the merging of data from multiple producers.

Tactical Information Interoperability. The ability of tactical naval warfare systems to use approved joint and Navy information standards, especially tactical data information links, message text formats, Naval Warfare Tactical Database (NWTDB), and/or Over-the-Horizon Gold formats.

Tactical Naval Warfare System (TNWS). Any C^3, Intelligence (includes surveillance), or Combat system that supports naval warfare.

NWTDB Reference Database Production Architecture



Enclosure (2)

INTERIM NWDTB USER FEEDBACK/REQUIREMENTS REPORT

Following items are keyed to report paragraph numbers.

1. USER IDENTIFICATION. Identify the user command and point of contact. Include mail and message addresses plus telephone and facsimile numbers
2. SYSTEM AND DATA PRODUCT IDENTIFICATION. Identify name, edition or version of the data product and system(s) involved.
3. DATA REQUIREMENT OR FEEDBACK REPORT. Identify new or changed requirement or rate a product's required performance in specific operational environments and applications. This should include the full range of product characteristics including media and user documentation.
4. IMPACT ASSESSMENT. Operational impact is defined in terms of the current and potential operational impacts on users. Assess impact for both the system in question and the network of affected systems. Make specific projections for wartime and crisis situations based on experienced or projected increased activity and availability of backup capability in those cases.
5. CAUSAL ANALYSIS. Identify known and suspected causes for the problem. Relate to specific applications and functions, software, or hardware and analyze in sufficient detail to support impact assessment and corrective actions. Typical content includes the following:
5.a INFORMATION REQUIREMENTS ANALYSIS. Briefly describe information requirements not being fulfilled. Since requirements change as systems and situations evolve, this analysis should identify new or significantly changed requirements. Reduced requirements are important.
5.b OPERATIONAL SUPPORT ANALYSIS. Review relevancy and timeliness of the database performance and information outputs in terms of satisfying command and control and targeting needs.
5.c STRUCTURE AND FILL ANALYSIS. Identify and analyze database structure, fill, and related processing associated with the reported problem. This includes ability to interface with related systems, internal and external communications, and operational procedures. Relevant factors include, but are not limited to: (a) completeness in terms of the full range of information needs (b) redundant data; (c) non-standard formats or addresses; (d) errors in content; (e) errors in structure; and (f) errors in correlation/track management.
5.d HUMAN FACTORS ANALYSIS. If applicable, address the problem in terms of ease of use, training, or experience, availability or suitability of documentation, time required for interpretation of outputs, etc.

5.e ARCHIVING AND LOGGING CAPABILITY ANALYSIS. System archiving and logging capabilities inherent in the product under consideration will be analyzed in terms of completeness and responsiveness. A key issue is whether or not the integral system capability supports rapid detection, documentation, and resolution of problems.
6. SOLUTION DEVELOPMENT. When possible, preferred solutions should be proposed in context of importance and urgency. Major deficiencies are normally resolved by whatever means possible and then reported. Minor deficiencies are more frequently put into the appropriate support channels and worked around until a permanent solution is received. Given the need for inter-platform and inter-theater interoperability, all solutions should be assessed for their impact on Navy, joint, and combined operations.
7. IMPLEMENTATION AND MONITORING. Report whether special implementation and monitoring actions are necessary. Identify actions already taken to report and resolve the issues.

Note: Message may be used for urgent feedback.

Ser xxx/

From:

To: (Functional Database Manager, if known. If not, send to ONI-73 for determination and action. Addresses listed below.

Subj: NAVAL WARFARE TACTICAL DATABASE FEEDBACK REPORT

Ref: (a) OPNAVINST 9410.6, "Naval Warfare Tactical Database (NWTDB) Requirements for Tactical Naval Warfare Systems."

Encl: (1) NWTDB Requirement (or Report) Number CY-xx
(Use calendar year, followed by two-digit sequential number, starting with 01 each calendar year, e.g. 94-03.)

1. The following NWTDB requirement (or report) is forwarded as provided in reference (a).

1. USER IDENTIFICATION.
2. SYSTEM AND DATA PRODUCT IDENTIFICATION.
3. DATA REQUIREMENT OR FEEDBACK REPORT.
4. IMPACT ASSESSMENT.
5. CAUSAL ANALYSIS.
    a. INFORMATION REQUIREMENTS ANALYSIS.
    b. OPERATIONAL SUPPORT ANALYSIS.
    c. STRUCTURE AND FILL ANALYSIS.
    d. HUMAN FACTORS ANALYSIS.
    e. ARCHIVING AND LOGGING CAPABILITY ANALYSIS.
6. SOLUTION DEVELOPMENT.
7. IMPLEMENTATION AND MONITORING.

Copy to:
CNO (N65)
ONI-73
NCTSI (Code 5)

Enclosure (3)

NWTDB REQUIREMENTS AND FEEDBACK REPORT ADDRESSES

PLATFORMS/SYSTEMS CHARACTERISTICS AND PERFORMANCE DATA - NID

Director, Office of Naval Intelligence
Attn: ONI-222
4301 Suitland Road
Washington D.C. 20395-5000

RADAR PARAMETERS DATA - RAPADS

Officer in Charge, Electronic Warfare Operational
Programming Facility (EWOPFAC)
5100 Relay Road
Chesapeake, VA 23322-4499

OCEANOGRAPHIC AND METEOROLOGICAL DATA - OAML AND NODDES

Commander, Naval Oceanography Command
Attn: Code N522
1020 Balch Boulevard
Stennis Space Center, MS 39529-5000

MILITARY INTELLIGENCE DATA - MIIDS/IDB

Atlantic Intelligence Command
Attn: Code IS7
7941 Blandy Road, Ste 100
Norfolk, VA 23511-2498

or: Joint Intelligence Center, Pacific
Attn: RD
Box 500
Pearl Harbor, HI 96860-7450

CRYPTOLOGIC DATA - CCDB

Commander, Naval Security Group Command
Attn: G32
Naval Security Group Command Headquarters
3801 Nebraska Avenue, N.W.
Washington, DC 20393-5210

MODELING AND SIMULATION DATA

Commander, Space and Naval Warfare Systems Command
Attn: SPAWAR 31
2451 Crystal Drive
Arlington, VA 22245-5200

- **Copy to** (except cryptologic):

Chief of Naval Operations
Attn: CNO (N65)
Department of the Navy
Washington, DC 20350-2000

Director, Office of Naval Intelligence
Attn: ONI-73
4301 Suitland Road
Washington, DC 20395-3000

Commanding Officer, Navy Center for Tactical Systems Interoperability
Attn: Code 5
53690 Tomahawk Drive, Suite 125A
San Diego, CA 92147-5082