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JOINT DATA NETWORK (JDN) OPERATIONS

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References(s):

a. Joint Requirements Oversight Council Memorandum (JROC-M) 021-00, dated 11 Feb 00, subject Interoperability.

b. CJCSM 6120.01 Joint Multi-Tactical Digital Information Link (TADIL) Operating Procedures (JMTOP)

c. JICO Operational Concept (Draft), JTAMDO, dated 01Jun99

d. Task Analysis for the JICO, Joint Integrated Air Defense System Interoperability Working Group (JIADS IWG) JICO Systems Engineering Working Group (JSEWG), dated 11 Apr 99.

e. Joint Publication 5-00.2, Joint Task Force Planning Guidance and Procedures, dated, 13 Jan 99

1. Purpose. Describes concepts, provides planning guidance, and defines organizational relationships associated with the joint data network.

2. Cancellation. None.

3. Applicability. The guidance and procedures contained in this manual and any supplements are applicable to the Joint Staff, Commanders in Chiefs, Services, and Defense agencies.

4. Procedures. See enclosures.

5. Additional Copies of Manuals. Commanders in Chiefs, Services and Defense agencies and all other holders are authorized to reproduce, print and stock copies to meet their internal requirements.

6. Summary. None
7. Releasability. This manual is approved for limited release. DOD components (to include the combatant commands) and other Federal agencies may obtain copies of this manual through controlled Internet access only (limited to .mil and .gov users) from the CJCS Directives Home Page--http://www.dtic.mil/doctrine. Joint Staff activities may access or obtain copies of this manual from the Joint Staff LAN.

8. Effective Date. Upon signing.

FRY S.A.
VADM
Director, Joint Staff

Enclosure(s):
A – JOINT DATA NETWORK (JDN)
B - JOINT INTERFACE CONTROL OFFICER (JICO) PLANNING TASKS
C - JOINT INTERFACE CONTROL OFFICER (JICO) EXECUTION TASKS
D - STATEGIC NODING OF MULTI-TADIL ASSETS
E - JOINT INTERFACE CONTROL CELL – DEPLOYABLE
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ENCLOSURE A

INTRODUCTION TO THE JOINT DATA NETWORK (JDN)

1. General. This manual describes and outlines the operation of the Joint Data Network (JDN) within a joint task force (JTF). This manual complements and supports existing joint doctrine and interoperability requirements. A forward deployed JTFs connectivity and interoperability among all of its assets and resources is an operational imperative. The JDN provides rapidly deployable, responsive, scaleable, flexible, timely, accurate data, information management and exchange to ensure positive command and control (C2) during each critical phase of JTF operations. Employment of the JDN in support of the JTF requires a full range of tactical digital data, communications systems, and automatic data processing equipment (ADPE) to ensure that the commander, joint task force (CJTF) and assigned component commanders can decisively accomplish their mission.

> *"We owe the men and women who may be in harm's way every edge technology can provide. Technology will never be a substitute for courage and human toughness in conflict, but it can increase the likelihood that the tough and the courageous will be successful."*
>
> Admiral William A. Owens,
> Vice Chairman, Joint Chiefs of Staff

2. Purpose. This document has been developed to bring together all the operational and communication networks that comprise the JDN and enable the tactical information exchange requirements of forces in support of the joint force commander's (JFC) campaign plan. It identifies key requirements for development of a single air, land, surface, subsurface, and space digital data information exchange.

3. Background. The Joint battlespace has several digital information networks that either work independently of each other, or require dedicated planning and execution to share information. Each digital network is characterized by the communications architecture and associated data it contains.

4. Scope. This manual addresses JDN management at both the operational and tactical levels of warfighting across a broad range of military operations. It outlines the general doctrine, functions, organization, operations, support, and training required to plan and employ the JDN. This manual complements the specific operating procedures employed by interface control officers (ICOs) at all levels provided in the CJCSM 6120.01 series (Joint Multi-TADIL Operating Procedures (JMTOP)).

5. JDN Definition. The JDN is a network of communications-electronics systems that carries tactical digital information link (TADIL) and multi-sensor early warning information around the theater in support of joint theater air, missile defense, and attack operations in the form of counter-air, interdiction, close air support (CAS), suppression of enemy air defense (SEAD) and time critical targeting (TCT) prosecution. Information is generally passed over the JDN in near-real time.

a. The JDN is the primary feed to support the common tactical picture (CTP). The CTP contains information spanning the spectrum from the sensor to the shooter to support tactical forces. The CTP consists of intelligence, surveillance, reconnaissance, identification, environmental, and positioning inputs. Key factors in the CTP include location, timeliness, coverage, sensor revisit rate, accuracy, and completeness. An accurate and complete CTP, is directly affected by the interoperability (information exchange, training, systems and doctrine) of the forces assigned. Using the CTP all warfighters share the same scalable picture and can extract the pieces relevant to their tactical situation and level of command. The CTP enables C2, situational awareness (SA), and combat identification (CID). Effective design and implementation of the multi-TADIL network are critical in managing the complexities of the electronic battlefield, thus improving the JFCs ability to engage hostile forces and prevent fratricide. The CTP along, with information from the joint planning network (JPN), contributes to the common operational picture (COP).

b. The joint interface control officer (JICO) concept was developed to overcome joint interoperability deficiencies related to management of the Multi-TADIL Network (MTN), which is a major component of the JDN and CTP which enhances the CJTFs ability to support the warfighter.

6. Interoperability. Commanders must consider the information exchange requirements for, and impacts of, interoperability in the planning and operation of the JDN and its components.

7. Training. It is imperative that all CINCs, services, and agencies (C/S/A) maintain trained personnel to manage and operate the JDN in support of joint requirements. Service training programs should prepare commanders and operators to support the JDN and to complement the joint training outlined in appendix C to enclosure A.

8. Applicability. This document shall be used by CINCs and Services (C/S) of the Department of Defense when a JDN is established in support of a Joint Task Force (JTF). The C/S are responsible for developing detailed procedures applicable to their components and agencies

ensuring that those procedures are implemented, and that Service operators are trained in these joint procedures. In all cases of conflict between this manual and other publications, this manual takes precedence. Users are requested to inform the Joint Staff (JS) J-38, via appropriate C/S channels, of all such cases.

a. The following terminology conventions are used throughout this Manual:

(1) “Shall” indicates a mandatory procedure which is essential to proper JDN operations.

(2) “Should” indicates a recommended procedure to be used unless the operational situation dictates otherwise.

(3) “May” either indicates a operational, or alternative procedures to be considered, or an optional capability that is not necessarily implemented in all agencies or units.

(4) “Can” indicates a capability available for use, if implemented.

(5) “Will” and “is/are” are generally used descriptively for information purposes.

(6) “He” means “he or she.”

APPENDIX A TO ENCLOSURE A

JOINT DATA NETWORK PLANNING

1. General. This appendix provides guidance to assist the JDN planners during the deliberate planning process. Detailed JICO planning tasks are provided in Enclosure B.

2. Universal Joint Task List (UJTL). The UJTL, when augmented with the Service task lists, is a comprehensive integrated menu of functional tasks, conditions, measures, and criteria supporting all levels of the Department of Defense in executing the National Military Strategy. The UJTL provides a common language and reference system for various users, including JFCs, strategic and operational planners, combat developers, combat support personnel, and trainers. Procedures for the Review of Operation Plans, CJCSM 3141.01(series), establishes a standard for plan review to include identification of tasks in the mission statement, concept of operations, subordinate tasking, and coordinating instructions using the UJTL.

3. JDN Planning. JDN planning in support of joint operations is accomplished within the chain of command. This planning is primarily the responsibility of the JFC staff in conjunction with the combatant commands and component commands. Deliberate and crisis action planning (CAP) guidelines are outlined in Joint Pub 5-0, "Doctrine for Planning Joint Operations", Joint Pub 6-0, "Doctrine for C4 Systems Support to Joint Operations", and Joint Pub 6-02, "Doctrine for Employment of Operational/Tactical C4 Systems."

> *"Unless a staff officer is able to assist his commander in getting things done, in addition to coordinating, planning and policy making, he is not serving his usefulness."*
>
> General Alexander M. Patch
> Quoted in Ray S. Cline,
> Washington Command Post, 1951.

4. JFC JDN Planning. JDN planning establishes the context in which the combatant commanders and/or subordinate JFCs identify the tactical information exchange requirements. A determination as to numbers, types, and locations of systems results from staff planning at those levels involved in the operation. Planners include the staffs of CINC, JTF, and component command staffs, in coordination with supporting CINCs and services. The most important factor to consider when planning JDN use is the adequacy of the plan to satisfy the warfighter's requirements. The information exchange of digital data

within the JDN has been designed to support joint operations involving the following functions and plans needed to address these functions:

(a) Digital system information exchange and network management.

(b) Digital system position and identification.

(c) Space surveillance.

(e) Air surveillance.

(f) Land surveillance.

(g) Surface surveillance.

(h) Sub-surface surveillance.

(i) Electronic warfare (EW).

(j) Intelligence.

(k) Mission management.

(l) Weapons coordination and management.

(m) Command and Control (C2).

(n) Information Management (IM).

5. Incremental Building. Because military operations seldom occur at the same location as the preponderance of our military forces, planners should build data networks incrementally. As the mission matures and assets allow, planners will activate networks and switching systems. Connections to the Defense Information Systems Network (DISN) and commercial networks will become more extensive and robust. The system should also redeploy in an incremental fashion.

6. Modular Packaging. Based on the mission, the commander's intent, the operation plan, the capabilities, limitations, availability of equipment, and the infrastructure in the operational area, the planners will build modular packages to meet the commander's needs. Planners tailor these packages to existing conditions and link the individual modules into a system.

7. Interoperability. The planner must know the capabilities and limitations of the other component systems and must be able to integrate them into the JDN plan.

8. Standardization. Standardization should be evident in the planned system. The planner should ensure that equipment strings and system configurations are standardized throughout employed units. The JFC's requirements must not be compromised by uncontrolled, widespread use of nonstandard systems, protocols, procedures, or terminology. C4 systems planners must have a shared frame of reference.

9. Accommodating Change. Planners must anticipate change and be able to respond in a timely manner. The JDN will include a diversity of systems among forces. Means of connectivity must incorporate alternate routes and methods. Ensuring this diversity of systems and alternate routes will contribute to system flexibility, survivability, and responsiveness.

10. Commercial Capabilities. The JDN plan should factor in the use of commercial systems (i.e., host-nation telephone infrastructure, power grid, etc). The availability of commercial systems may offer an alternative means to satisfy the JFCs JDN requirements and may reduce the number and size of deployed modular packages. Planners must ensure that the deployed modular packages include sufficient capabilities to interface with commercial systems.

11. Information Protection and C4 Systems Defense. A critical aspect of JDN planning is the defense against information warfare (IW). In the context of the JDN, this includes the cryptographic protection of data and physical protection of related conduits.

12. Discipline. JDN systems and resources are limited. Planners should ensure that these limited resources support necessary information exchange requirements, including data latency and overall mission execution. The mission and the commander's intent will guide what information is required by the JTF.

13. Geographical, Bandwidth and Electromagnetic Planning.

a. Comprehensive linking of the JDN establishes a level of connectivity that enables tactical data exchange within a joint force. The hardware and software interfaces should be transparent, and continued flow of data does not depend on action by an intermediate user.

b. Planners must tailor the network for varied geographical environments. Terrain, hydrographic, atmospheric, vegetation, man-

made structures, and cultural features will affect the ultimate design and efficiency of the network.

c. Effective use of available bandwidth and the electromagnetic spectrum depend on these environmental factors. Additionally planners must consider useable radio frequency bands, output power limitations, and host nation restrictions. This planning will allow for optimal nodal point locations resulting in maximum network range and efficiency.

APPENDIX B TO ENCLOSURE A

JOINT DATA NETWORK

1. General. This appendix delineates the specifics of the JDN management, planning, and organization relationships.

2. Purpose. The purpose of the JDN is to provide warfighters, at all echelons, access to a CTP that facilitates the comprehension of the tactical situation, and for tactical commanders to exercise C2 upon assigned units. It provides tactical commanders and units time-critical early warning, track, and C2 information necessary for the performance of joint force tactical operations. It carries near-real time tracks, engagement status and coordination data, tactical weapons control orders, and weapons pairing and assignment orders to support Joint coordination and execution of all assigned missions.

3. Components of the JDN. The JDN consists of information from the multi-TADIL network, composite tracking network, ground digital network, and intelligence network.

a. Multi-TADIL Network (MTN). The MTN is the multi-TADIL architecture (MTA), systems and associated tactical data that support the JDN production of the common tactical picture (CTP). It is the physical configuration, functional organization, and operational procedures used in the design, establishment, modification, and operation of TADIL networks and associated voice circuits. The functional organization of the multi-TADIL network considers the nature of network traffic and the desired organization of exchanged data (e.g., filter plans). One of the elements that differentiate the multi-TADIL network from the multi-TADIL architecture is the requirement within the multi-TADIL network to manage the data exchanged across the MTA.

(1). Multi-TADIL Network Components.

(a) Link 11

(b) Link 11B

(c) Link 16

(d) NATO Link 1

(e) Link 22 (NATO Improved Link Eleven (NILE))

(f) Service-unique/platform specific data exchange systems that potentially contribute to the multi-TADIL network (e.g., Link 4A, ATDL-1, GBDL, etc.)

(2) Multi-TADIL Architecture. A multi-TADIL architecture defines the TADIL interfaces in an area of operations (AO) for exchanging tactical data in support of the commander's concept of operations (CONOPS). The MTA includes the types of TADILs to be used, assignment of network participants to specific nets and sub-nets, frequency and cryptographic configurations, and other equipment tuning parameters (e.g., data link reference point (DLRP), etc.). The MTA also considers the assignment of roles and responsibilities within TADIL networks (e.g., data forwarding gateways, net control station (NCS), network time reference (NTR), navigation controller (NC), gridlock reference unit (GRU), cryptographic coordinators, etc.). Specific operational procedures for the multi-TADIL network are contained in CJCSM 6120.01, Joint multi-TADIL Operations Procedures (JMTOP).

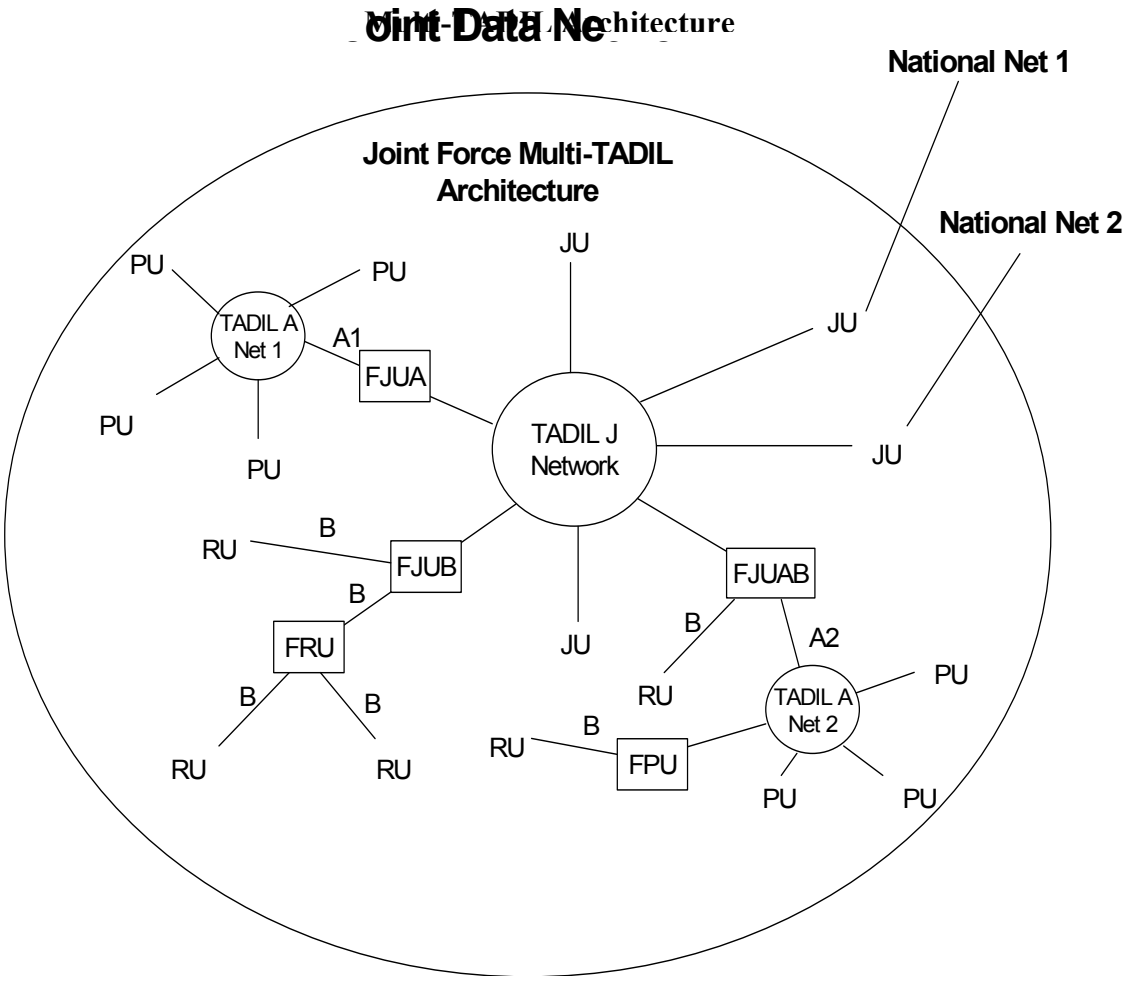

Figure B-1 JDN Multi-TADIL Architecture

(3) Tactical Data Systems (TDS). TDS are defined as automated real-time and near-real time computer systems in which tactical data are entered for storage, calculation, and/or displayed (CJCSM 6120.01 series). Exact force capabilities for connectivity and data production and management depend on TDS configurations. Platforms (and in some cases, individual unit) capabilities and limitations determine interface and configuration options for the multi-TADIL network, and create interoperability challenges.

(4) Data Forwarders. Data forwarders are network nodes equipped for interfacing different TADILs within the multi-TADIL network.

(5) Forwarding Units. TADIL forwarding units (e.g., FJU, FPU, FRU, etc.) provide the facilities for data forwarders, devices that receive data on one data link and output the data in proper format and protocols on another link. TADIL forwarding units provide the facilities for data forwarders, devices that receive data on one data link and retransmit the data representing the same information, using proper format and link protocols, to another data link.

(6) Gateways. A gateway refers to a system that transfers non-TADIL JDN data onto one or more TADIL networks (e.g., TIBS to Link 16). Gateways provide the means for data to enter and exit the multi-TADIL network.

(7) Tactical Data. Tactical data is the near-real time data exchanged across the multi-TADIL network supporting combat operations.

(8) Information Exchange Requirements. Design objectives or principles for a multi-TADIL network are derived from mission analyses, in which the JFC and subordinate component commanders information exchange requirements (IER). IERs serve as design requirements for the multi-TADIL network planner to consider in the development of the MTA. They may include the nature of anticipated data exchange, scope of network coverage (number of nodes), degree of assured connectivity, levels of acceptable data traffic latencies, anticipated network load, and fault tolerance and network reconstitution.

(9) Data Accuracy. Data accuracy refers to the validity of exchanged information as presented on the CTP. Data accuracy is a key element of the multi-TADIL network.

(10) Timeliness/Data Latency. Timeliness and data latency are based upon a commander's requirement. Data timeliness must be considered in establishing the MTA, which in turn must be appreciated by commanders as they plan and execute their CONOPS.

(11) Data Integrity. Data integrity refers to the validity and timeliness of exchanged information without regard to content. It is concerned with the correct connectivity between equipment elements of the multi-TADIL network and correct implementation of message standards (e.g., protocols and field definitions) and timeliness of exchange.

b. Joint Composite Tracking Network. The JCTN is tracking fusion network supporting system-to-system exchange of multi-sensor data in real-time. The JCTN supports systems and firing units in the

real-time detection and engagement of tactical threats. The JCTN provides systems and firing units real-time exchange of precision sensor measurement data and weapons engagement signals to conduct engagements in real-time.

c. Ground Digital Network (GDN). The GDN is a composite of ground digital data links and networks that when interfaced distributes the ground force situation into the JDN (e.g., EPLRS, TCO, AFATADS, etc.)

d. Intelligence Networks. Intelligence networks supporting the JDN are those information exchange mediums that support near and non-real time exchange of intelligence information (e.g., TIBS, TDDS, etc.).

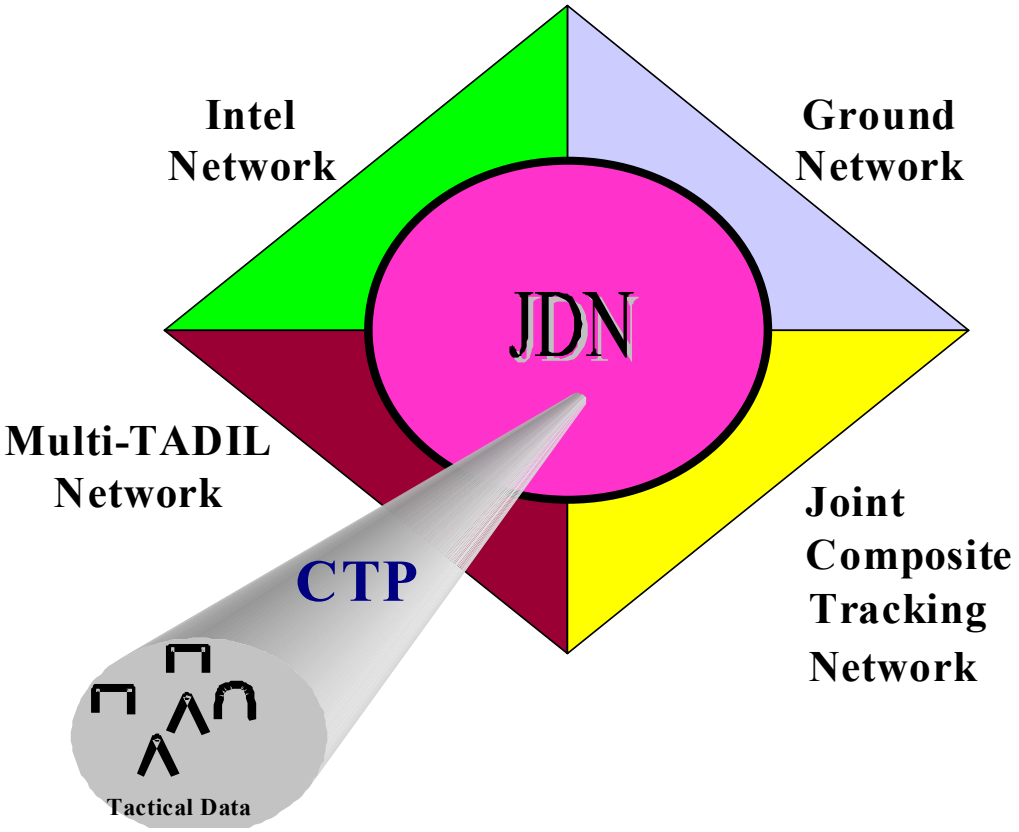

Figure B-2 Joint Data Network Components

4. JDN Organization and Relationships. JDN organization and relationships are associated with the JFCs structure. As with other elements of the JFC and JTF, the JDN will be task organized to support

the JFC campaign plan.

a. JDN Operations Officer. The JDN operations officer coordinates with component commanders or command elements as directed by the JFC. The JDN operations officer is responsible to the JTF J-6 for the JDN network operations and integration of information from the subordinate networks in support of the CTP, MTN, JCTN, GDN and intelligence network. While operational requirements are generated from the JTF J-3, network resource allocation of JTF networks, to include those in the JDN, is a function of the JTF J-6. Close coordination between JTF J-3 and J-6 staff is essential to support the JDN operations. The JDN operations officer will support and coordinate with the subordinate JDN network coordinators. Subordinate JDN network coordinators will provide direct support to assigned component commanders (e.g., JFACC, JFMCC, JFLCC) as directed by the JFC. Additionally, the JDN operations officer will coordinate within the JCCC in support of COP development.

b. When assigned by the commander joint task force (CJTF), the JDN operations officer is overall in charge of the development of the JDN and the production, management, and fusion of the CTP. The JDN operations officer is responsible for the integration of information from the following subordinate networks: MTN, CTN, GDN and IN. The JDN operations officer will coordinate with elements of the JPN in support of the COP. In the construct of the joint network management system (JMNS) CONOPS it is envisioned that the JDN operations officer shall reside within the Networks Branch of the JTF JCCC to better facilitate coordination across the JDN and coordination with the JPN.

(1) MTN Coordinator. The MTN coordinator is responsible to the JDN operations officer for planning and managing the TADIL, tactical data, associated communications, and external TADIL interfaces. The MTN coordinator is the JICO. JICO functionality is addressed in appendix D of this enclosure.

(2) JCTN Coordinator. The JCTN Coordinator is responsible to the JDN operations officer for planning and integrating netted sensor capability into the JDN.

(3) GDN Coordinator. The GDN coordinator is responsible to the JDN operations officer for planning and integrating the GDN into the JDN.

(4) Intelligence Network Coordinator. The Intel network coordinator facilitates the collection effort across the various Intelligence

sub-networks and participants to ensure that intelligence data collected from multiple sources are reported on the appropriate MTN or JDN interface.

c. JTF Relationships. Control of the various networks comprising the JDN is a function of, and subordinate to, JTF operations. As specified in this paragraph, and as directed by the Joint Force Commander, the JDN sub-network coordinators (e.g., Joint Interface Control Officer) will provide direct support to a designated component commander (JFACC, JFGCC, JFMCC). Coordination with the JDN Operations Officer in the
JCCC, as depicted in figure B-3, is required for supporting and deconflicting the Joint Force communications architecture.

Recommended JTF J-6 Organization for JDN Operations

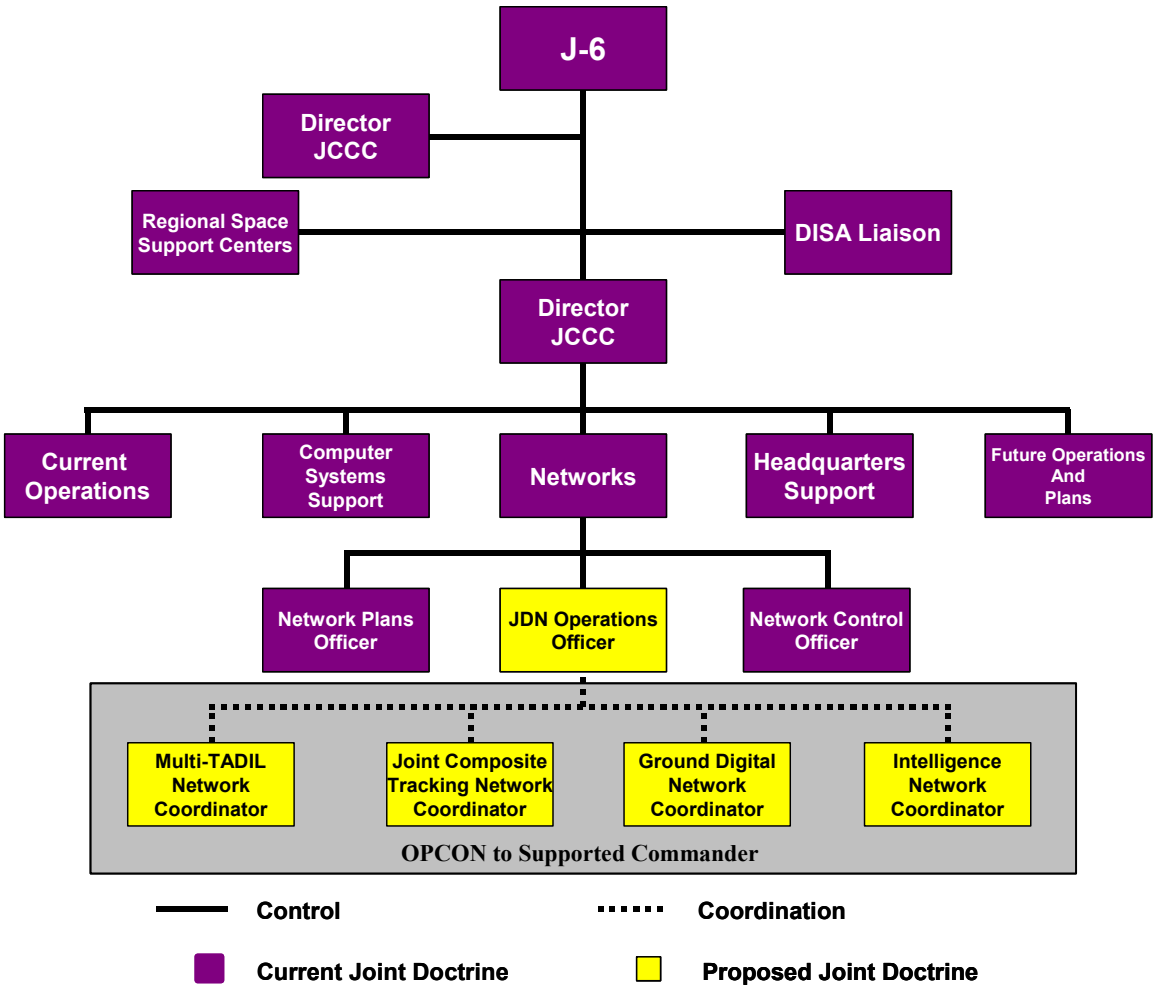

Figure B-3 Notional JCCC including JDN Operations Officer and their relationship.

If required to support MTN operations the CJTF should assign a JDN operations officer. The JDN operations officer shall be responsible to the JFC and related component commanders for fulfilling information exchange requirements (IER), implied tasking, feedback on competing requirements, address requirements to the JCCC and other cognizant commanders for C4 systems, unit capabilities and personnel to meet the assessed requirements and tasking.

d. Traditionally, the duties of JDN operations officer have come under the operational direction of the Joint Forces Air Component Commander (JFACC) and/or Area Air Defense Commander (AADC) with the JTF J-6 supporting. However, in operations where there is no JFACC assigned, or where mission priorities dictate, the JDN operations officer shall come under the operational direction of the component commander or command element as directed by the JFC. Changes to the command structure during the course of an operation should consider the impact upon the JDN operations officer's location and continuity of operations.

e. The Joint Communications Control Center is the operational arm of the JTF commander's J-6 staff and is responsible for managing the command, control, communications and computer (C4) connectivity and communications that extend from the combatant commanders headquarters to the deployed location of a JTF and its elements. In addition the JCCC manages all joint tactical and non-tactical communications within the JTF commanders AO which include telecommunications and data circuits, systems, procedures, facilities, services, and equipment that:

(1) Support the CINC or CJTF and their operations facilities.

(2) Support other joint commands and forces in the JOA.

(3) Interface with the components of joint commands.

(4) Provide connectivity to the DCS/DISN, commercial communications systems, or allied communications systems.

(5) Provide connectivity to the C4 systems of other combatant commands.

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APPENDIX C TO ENCLOSURE A

MULTI-TADIL NETWORK MANAGEMENT

1. General. Network interface control and tactical data management are the cornerstones of effective multi-TADIL operations. The JICO is the coordinator of the multi-TADIL network. ICOs exist at different levels within the Components in support of specific TADIL operations. When the scope of operations shift from single service TADIL operations to Joint multi-TADIL operations, units with a doctrinal mission of ICO functionality shall be able to seamlessly transition to JICO. Specific ICO responsibilities are addressed in CJCSM 6120.01 Series, JMTOP.

2. Joint Interface Control Officer (JICO). The JICO is the senior multi-TADIL ICO in support of JTF operations. The JICO is responsible for effecting planning and management of the joint multi-TADIL network within a theater of operations. When a JTF is formed, there will be only one JICO per JTF.

a. To support JTF operations, the multi-TADIL AO may be subdivided into regions and sectors. In cases where regions and sectors are employed, regional ICOs (RICO) and sector ICOs (SICO) will be assigned and are governed by the same techniques and procedures for the JICO that are contained in this manual. The exception to this may be in the composition (personnel and equipment) of a RICO or SICO cell. These cells are to be organized according to mission requirements and platform configuration.

b. Figure C-1 depicts a notional JTF JICO command and coordination structure. The diagram shows the relationships between the JICO and his principle supported commander (JFACC), as well as, the JICO's control and coordinating responsibilities with subordinate and adjacent elements (RICO and JCCC). The diagram also depicts coordinating relationships between RICOs and component commanders, which they may be under tactical control (TACON).

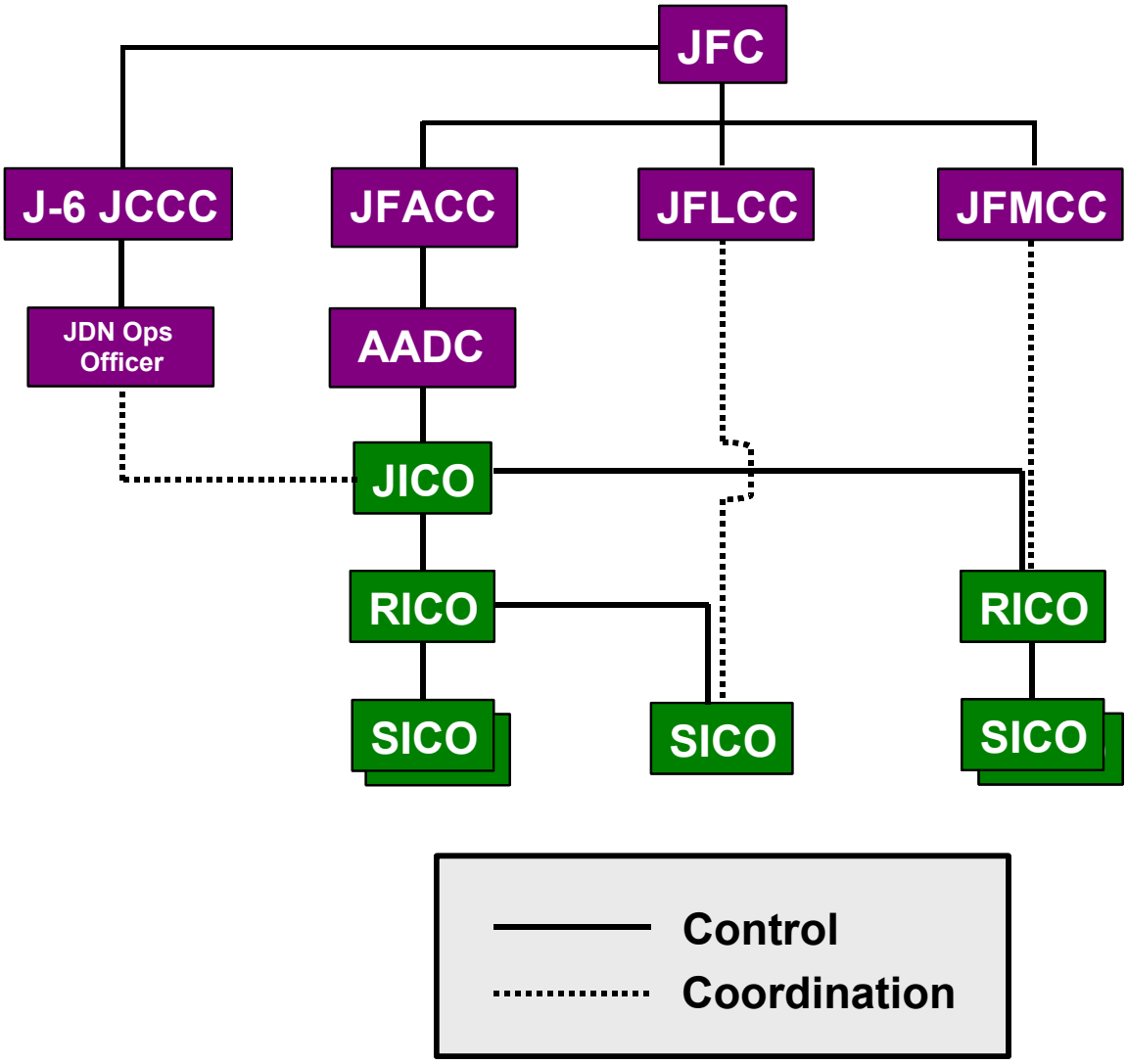

Figure C-1 Notional JICO Organizational Relationships

c. To support and facilitate peacetime and contingency planning, coordination, and execution, JICOs are required at various echelons of command within the joint forces - the CINC headquarters (HQ), Service component HQ, and the operational forces.

3. JICO Responsibilities. The JICO, acting under authority of the JFC designated component/functional commander, is the multi-TADIL network coordinator. As such, the JICO plans the MTA; supports IERs with the other supported commanders; manages the information derived from data exchanged across the MTA; drafts the Operational Tasking (OPTASK) Link message; coordinates the

initiation of, and monitors the multi-TADIL network; affects network corrective action, when required; and coordinates the termination of networks at the conclusion of operations. If regional multi-TADIL networks are required, the JICO has the additional responsibility of planning regional architectures with support from RICOs.

4. JICO Planning Requirements. Multi-TADIL network planning is best accomplished during deliberate planning. However, there will be times when the JICO is required to accomplish crisis planning and dynamic replanning in support of the multi-TADIL network operations. Throughout the planning process, the JICO should always be cognizant of, and tailor the plan to, IERs, environmental factors, threat, scenario and supporting friendly forces. The following is a list of overarching multi-TADIL Network planning requirements. The JICO shall refer to Appendix A of Enclosure C of this manual for detailed planning tasks.

a. Design a multi-TADIL architecture based on IERs.

b. Provide requirements for multi-TADIL related voice communications to communication planners.

c. Determine JICO cell organization, structure, equipment, operational facility (OPFAC), etc.

d. Identify multi-TADIL interoperability requirements.

e. Plan for the placement and integration of strategic data link nodes. For details on Strategic Noding refer to Enclosure D of this Manual.

f. Develop OPTASK Link Message. Specific OPTASK Link message instructions are contained in CJCSM 6120.01 (JMTOP) and MIL-STD 6040, U.S. Message Text Format (USMTF).

g. Plan for and coordinate the integration, and interoperability of, intelligence support systems at national through tactical levels.

5. JICO Execution Requirements. The following requirements are a list of the overarching Multi-TADIL Network execution requirements. The JICO shall refer to Appendix B of Enclosure C in this manual for detailed planning requirements.

a. Establish and manage Multi-TADIL network.

b. Direct interface and architecture reconfiguration.

c. Direct the JICO organization and structure.

d. Establish multi-TADIL voice related communications.

e. Direct sensor and data registration.

f. Conduct Joint track data coordination and management.

g. Coordinate connectivity to the intelligence support systems of the CINC, CJTF, joint commands, components of the joint commands, etc.

6. JICO Manning Requirements. To meet warfighting requirements for CINCs and their components, trained JICO and multi-TADIL operators are required.

a. CINC JICOs. To meet deliberate planning and coordination requirements for exercises and contingencies within their particular AO, each of the following CINC's should establish a JICO billet: USJFCOM, USSOUTHCOM, USPACOM, USCENTCOM, USEUCOM and USSPACECOM (NORAD). The CINC JICO should be a senior Officer (0-4 to 0-5) with multi-TADIL planning and operational experience, and formally trained in JICO operations. The CINC JICO should reside within the J-3 and support operations within the Joint Operations Center (JOC). The CINC JICO is responsible for coordinating with component JICOs to ensure that multi-TADIL network operations fully support JTF operations during contingencies or training exercises.

b. Component JICOs. In order to support CINC multi-TADIL planning, coordination and execution requirements for exercise and contingencies, each Component should establish a JICO billet at appropriate headquarters elements and operational units. Component JICOs should be officers (0-3 to 0-5) with a multi-TADIL planning and operational experience, and formally trained in JICO operations. Component JICOs should reside within the S/G/N-3 and be able to support operations within command and battle management centers. Component JICOs are responsible for coordinating within their chain of command all elements required for seamless integration of their TADIL platforms into Joint multi-TADIL network operations. The following paragraphs reflect Component JICO requirements:

(1) U.S. Air Force. Two JICOs at each of the 12 numbered Air

Forces (NAF) (24).

(2) U.S. Navy. One JICO at each of the fleet CINC staffs (4), one at each numbered fleet staffs (5), and one each at group staffs (14) and one on each AADC module Cruiser (12), and an appropriate number of trained JICOs in subordinate units to meet anticipated operational requirements.

(3) U.S. Marine Corps. Three JICOs at each active tactical air command center (TACC) (9) and two at the reserve TACC (2). Three JICOs at each active tactical air operations centers (TAOC) (9) and 2 at each reserve TAOC (4).

(4) U.S. Army. One staff JICO in each operational area or JTF (2) and two staff JICOs in each contingency area (4). Three JICOs in each AAMDC (6) and two in each ADA brigade (14) (includes AC, NC, and UAADASCH training brigades).

c. Total JICO Manning. The following is a summation of Joint Forces JICO requirements for CINC staffs and their component manning:

CINC staffs	6
Components	97
Total:	103

7. JICO Training. JICO training will supplement, but not replace, Service specific operational and multi-TADIL training and competence. Joint training will build on that foundation to provide essential skills to plan and execute the joint multi-TADIL network. The JICO was established to plan and manage the joint force multi-TADIL network. Increased emphasis on joint integration and information exchange requirements has placed greater demands on interface planning, execution (operations), and management. These increased demands require that the JICO be formally school trained in joint multi-TADIL operations. An understanding by the JICO of how disparate TADILs effect the multi-TADIL network is paramount. The JICO must have a firm understanding of the JDN and how it interrelates with the JCTN, GDN, IN, JPN, and COP.

a. Service ICO Training. Each Service is responsible for training their personnel in Service specific ICO procedures, multi-TADIL operations, and supporting communications. Service ICO training is an important building block, and is a prerequisite, for JICO training.

b. Formal JICO Training. United States Joint Forces Command

(USJFCOM) as executive authority responsible for joint multi-TADIL training. U.S. Army Forces Command (FORSCOM) Joint Multi-TADIL School (JMTS) serves as the JICO and multi-TADIL training center. FORSCOM, coordinating with Service training activities, will maintain the multi-TADIL training curriculum, which includes JICO. The training includes both classroom and practical application of JICO core competencies. The training provides advanced level technical academics and a realistic operational environment using multi-TADIL analysis, display, and communications systems JICOs can expect to encounter in JICO, RICO, SICO cells throughout various theaters of operation.

c. JICO Course Prerequisites. Prerequisites for attendance to the JICO course are:

(1) Graduate of the JMTS JTIDS Operators Course.

(2) Graduate of the JMTS Multi-TADIL Advanced Joint Interoperability Course (MAJIC).

(3) Graduate of the JMTS JTIDS Network Design Course (waiver may be granted).

(4) Be a Service multi-TADIL subject matter expert (SME).

d. Waivers. Waivers to any of the course prerequisites will be addressed by the JMTS staff on a case by case basis

8. JICO Cell. The JICO cell is a task-organized team of multi-TADIL experienced personnel that support the JICO. The JICO cell shall be staffed, trained, and equipped to support continuous operations. The cell should be comprised of personnel from participating components to optimize multi-service knowledge and experience. The JICO cell shall contain the necessary systems, and communications for establishing and managing the multi-TADIL network.

a. The following C2 nodes are candidate locations for the JICO cell as well as a RICO or SICO cell: JOC, Air Operations Center (AOC), Command Ships (LCC and AGF class), Aircraft Carrier Battle Group (CVBG) Tactical Flag Command Center (TFCC), AEGIS AADC module Cruiser, Amphibious Ready Group (ARG), Command Center, Marine Tactical Air Command Center (MTACC), and Army Air and Missile Defense Center (AAMDC). C2 execution nodes include the Control Reporting Center (CRC), TAOC, and ADTOC.

9. JICO Cell Personnel. The JICO cell consists of a JICO cell OIC, Watch Officer and operators necessary to support continuous multi-TADIL

planning, operations, and management. Members of the JICO cell will continuously monitor the multi-TADIL network, ensure nodal connectivity, and resolve interoperability and track management issues. A JTF level JICO cell designed to support 24 hour a day operations is shown in Table C-1. This table represents a level of effort expected for managing multi-TADIL operations in a major theater of operations. Cell composition can be task organized, or tailored, to meet the scope of operations at any level (e.g., RICO, SICO, shipboard, etc.).

Joint Interface Control Cell	**Number**	**Rank**
JTF JICO Cell OIC	1	O- 3 to O-5
JICO Cell Watch Officer	3	E-7 to O-3
Multi-TADIL Coordinator	3	E-5 to O-3
Joint Track Data Coordinator (JTDC)	3	E-5 to O-3
Intel Liaison Officer (LNO)	1	E-7 to O-3
JCCC Liaison Officer (LNO)	1	E-7 to O-3
Communications Technicians	3	E-5 to O-3
Total	15	

Table C-1 Notional JICO Cell Manning to support combat operations

a. To support crisis or contingency operations JICO trained personnel will need to be mobilized from within each component, as required, and deployed to support the JICO/RICO/SICO cell(s). The metrics required for mobilizing and deploying JICO cell personnel must be established during the deliberate planning process within each CINC and their components. To facilitate this process, each component should establish a means of tracking formally trained JICO and multi-TADIL personnel which may include assigning subspecialty codes or secondary Military Occupational Specialty (MOS) to graduates JMTS JICO and MAJIC course.

b. The following represents the recommended military occupational specialties from each service to provide optimum manning of a JICO, RICO, SICO cell (Although recommended, other occupational specialties may fill these positions at the discretion of the component):

(1) U.S. Air Force Enlisted:

(a) 1C5X1 Aerospace Control and Warning Systems Operator.

(b) 1A4X1 Senior Surveillance Technician

(c) 2E153 Communications Technician

(2) U.S. Air Force Officer:

(a) 13B Air Battle Manager

(3) U.S. Marine Corps Enlisted:

(a) 7236 Tactical Air Defense Controller

(b) 5979 Tactical Data Systems Chief

(4) U.S. Marine Corps Officer:

(a) 7202 Marine Air Command and Control Officer

(b) 7210 Air Defense Control Officer

(c) 5902 Electronics (Aviation) Maintenance Officer

(d) 5970 Data Systems Maintenance Officer

(e) 5974 Tactical Data Systems Administrator

(5) U.S. Navy Enlisted:

(a) Operations Specialists (OS) with applicable Naval Enlisted Classification Code (NEC).

(b) Information Systems Technician (IT) with applicable NEC.

(c) Electronics Technician (ET) with applicable NEC.

(6) U.S. Navy Officer:

(a) 6120 Operations Limited Duty Officer

(b) 7120 Operations Warrant Officer

(c) Unrestricted Line Officer Surface with applicable Additional Qualification Designator (AQD)

(d) Unrestricted Line Officer Aviation E-2 Mission Commander qualified or with applicable AQD.

(7) U.S. Army Enlisted:

(a) 14J C4I Enhanced Operator/Repairer-maintainer

(8) U.S. Army Officer:

(a) 140A0 Command and Control Systems Technician

(b) Commissioned Officer (0-3 – 0-5)

10. JICO Crew Positions. The following is a description of JICO cell positions and duties:

a. JICO Cell Watch Officer. The JICO cell watch officer is directly responsible to the JICO for cell operations and active management of multi-TADIL operations. The JICO cell watch officer directs and supervises the on-watch team and coordinates with the JICO and other JDN component coordinators to ensure information completeness in support of a CTP and JFC requirements. The JICO cell watch officer will monitor overall quality of the multi-TADIL network and direct actions to rectify problems as they occur. The JICO cell watch officer will conduct dynamic planning to adjust the multi-TADIL architecture and interfaces to meet changing requirements and operations. In a theater divided into multiple regions, the JICO cell watch officer will act as the coordinator between RICO cells for overall theater multi-TADIL network management. The JICO Watch Officer shall be formally trained in JICO operations.

b. Joint Track Data Coordinator (JTDC). The JTDC is responsible to the JICO watch officer for all track management issues. The JTDC is responsible for the clarity, accuracy, currency, and quality of tactical pictures. The JTDC, via the Track Supervision Net (TSN) and Voice Product Net (VPN), facilitates the resolution of dual track designations and identification conflicts that are the result of system interoperability problems or operator action. JTDC functionality is an integral component in the combat ID process. The JTDC will assist the theater ID Authority in timely and accurate assessment of tracks of interest. When multiple track data management regions or sectors are established, the JTDC coordinates, and is the ultimate resolution authority with, RICO cells to resolve cross-region track management and ID issues. The JTDC is net control (NECOS) for TSN.

c. Multi-TADIL Coordinator (MTC). The MTC will support the JICO cell watch officer by monitoring and resolving connectivity and interoperability issues. The multi-TADIL coordinator will monitor IU performance and compliance with OPTASK link parameters. He will ensure effective data flow to support the CTP and act as NECOS for the data link coordination net (DCN). In multiple regions, the multi-TADIL coordinator will coordinate with the RICO cells to resolve cross-region network architecture issues. The multi-TADIL coordinator, with JICO approval and concurrence, may delegate TADIL management responsibilities to individuals located at a C2 node (i.e., ship, CRC, TAOC) which can best facilitate the management of a particular data link. Those individuals include the Link 11/11B/16 manager. Specifics on TADIL managers can be found in the CJCSM 6120.01, JMTOP.

d. Intelligence Liaison Officer (LNO). The Intel LNO will coordinate with the Intelligence organizations such as the special information systems officer, Joint Intelligence Center (JIC) and Joint Analysis Center (JAC) Information Management Element (IME) to ensure appropriate intelligence data is distributed to and by the JDN through Intelligence systems interfaces.

e. Communications Technician. The JICO cell communications technician will coordinate all communications and cryptographic matters. The JICO cell communications technician will coordinate with the appropriate activity or unit to resolve support equipment and circuit issues, and advise the JICO cell watch officer regarding all communications matters. The JICO cell communications technician will assist the JICO to ensure that correct data and voice connections are provided to the JICO cell.

f. JCCC LNO. The JCCC LNO interfaces with the JCCC or other communications activities and units on all pertinent matters concerning the multi-TADIL network, and JDN interfaces, as they apply to local and theater Communications.

JICO Cell

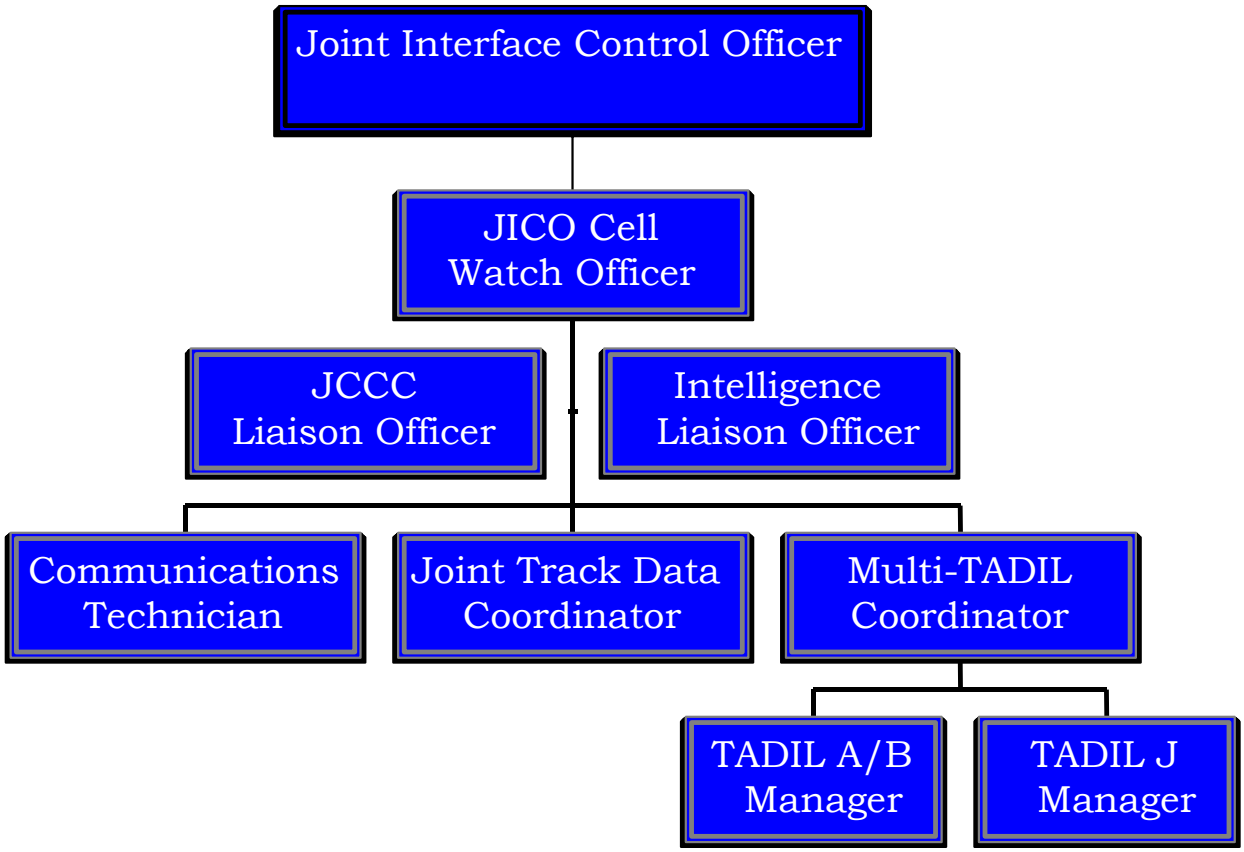

Figure C-2 Notional JICO Cell Organization

11. Communications. The JDN requires specific communications networks to operate in a real time and/or near-real time environment. The JFC's J2, J3, J6, and the JICO must take these into account when planning and deploying the JDN into an AOR. Care must be taken to ensure mutual compatibility between the JDN required communications networks and the overall command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) requirements of the JFC. Specific multi-TADIL communications circuits required by the JICO cell are discussed in detail in CJCSM 6120.01 JMTOP.

12. JICO Cell Equipment. In order to properly fulfill the mission, a JICO or JICO cell (to include RICO and SICO cells) must have available equipment, or a suite of equipment that allows him to plan, evaluate, implement, monitor, reconfigure, and communicate across the multi-TADIL network, and JDN, in support of joint force requirements.

13. JICO Support Teams. In order to better support and facilitate JICO operations around the world a requirement exists for a rapidly mobilized and deployable capability consisting of personnel and equipment that when in place become force multipliers for the JICO.

a. Joint Interface Control Cell – Deployable (JICC-D). The JICC-D consists of multi-TADIL and communications equipment and personnel capable of providing rapidly deployable, task organized JICO augmentation and equipment support for a limited duration for contingency operations to areas employing a multi-TADIL network. Specific details of the JICC-D can be found in Enclosure E of this manual.

b. Joint Tactical Information Distribution System (JTIDS) Engineering Response Team (JERT). The JERT is a U.S. Joint Forces Command sponsored activity consisting of Link 16 operational experts and network design engineers from various Service organizations such as FORSCOM joint training division, Service network design facilities (NDF), and civilian/contractor support to DOD. When activated, the JERT will work in direct support of the JICO during contingency operations providing Link 16 expertise not otherwise resident in theater. Specific details of the JERT can be found in Enclosure F.

ENCLOSURE B

JOINT INTERFACE CONTROL OFFICER (JICO) PLANNING TASKS

1. Purpose. This appendix identifies the planning tasks required for the JICO to properly plan for a Multi-TADIL Network.

2. General. The tasks identified are part of the deliberate planning process for JICO's. Appendix A to this enclosure depicts the Multi-TADIL Network planning cycle. The annex is a JICO process diagram depicting the general flow of information between the primary JICO tasks; both planning and execution.

3. JICO Planning Tasks. Appendix B to this enclosure identifies the tasks required by the JICO to support the multi-TADIL planning process.

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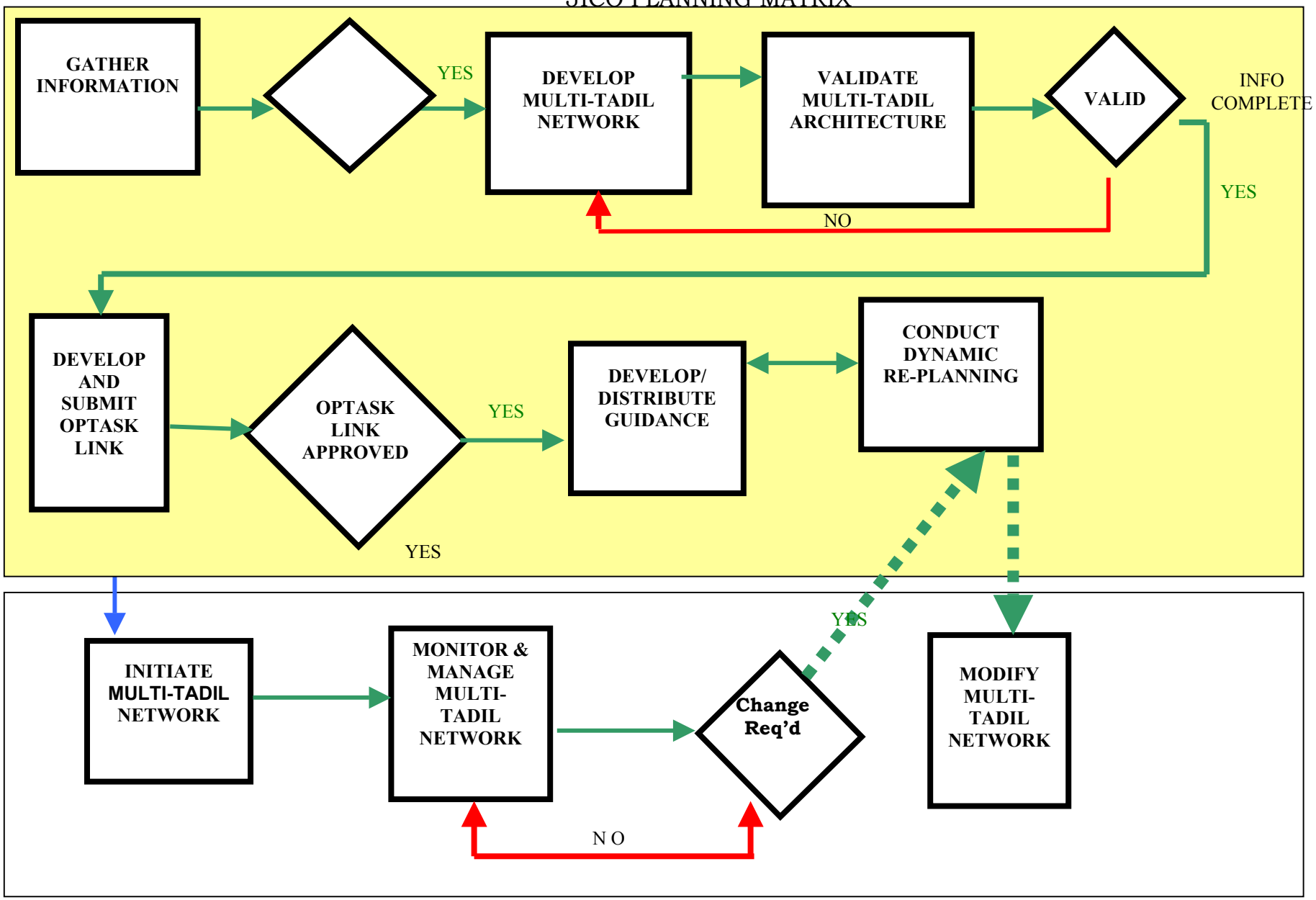
APPENDIX A TO ENCLOSURE B

JICO PLANNING MATRIX



APPENDIX B TO ENCLOSURE B

JICO PLANNING TASK LIST

1. Gather Information and Data.

a. Obtain JFC, JFACC, AADC and other supported commander's plans and IERs.

b. Interface Units.

(1) Determine interface units communications and data exchange capabilities and limitations, and known interoperability problems.

(2) Determine necessity of JICC-D and/or JERT and plan for their integration.

c. Obtain environmental and terrain data.

d. Obtain hostile force and non-combatant information.

e. Develop multi-TADIL architecture.

(1) Lead multi-TADIL network architecture planning meetings.

(2) Develop and review TADIL requirements for the area of operations.

(3) Determine ability to meet TADIL track update rate goals.

(4) Estimate multi-TADIL track reporting load.

(5) Develop and review multi-TADIL network and associated voice connectivity diagrams.

(6) Establish requirements for relay, data forwarding, and strategic nodes.

(7) Establish requirement for concurrent operations.

(8) Determine data link filter requirements.

(9) Determine JICO, RICO, and SICO cell manning requirements, tasks, and locations.

(10) Review existing JTIDS network library (JNL) for suitable networks.

(11) If required, submit network design request FORSCOM Joint network design library (JNDL).

(12) Review Link 16 network for accuracy and completeness.

(13) Submit network discrepancies to developing JNDL.

(14) Submit Link 16 frequency assignment request or waiver request if required.

(15) Coordinate with Link 16 deconfliction authorities. Refer to CJCSI 6232.01 series and Service instructions for Link 16 Network deconfliction policy.

(16) If necessary, conduct deconfliction with other Link 16 network managers.

(17) Provide requirements for multi-TADIL and associated voice communications to communication planners.

(18) Review and validate voice and data frequency allocation.

(19) Determine the requirement for, and recommend designation of, RICOs and SICOs.

(20) Designate TADIL managers as required.

(21) Establish relationship with appropriate agency LNOs.

(22) Coordinate multi-TADIL interoperability requirements with other network managers (JPN, JCTN etc.) to support development of CTP.

(23) Coordinate scheduled maintenance periods for IUs.

f. Validate multi-TADIL architecture and contingency plans.

(1) Assess multi-TADIL architecture against requirements, and provide feedback and alternatives.

(2) Ensure network architecture supports air defense plan, including force ID and other supported commanders plans.

(4) Determine impact of JPN on multi-TADIL network.

(3) Determine impact of JDN components on multi-TADIL network.

g. Develop and submit OPTASK Link message IAW the CJCSM 6120.01 series, JMTOP and MIL-STD 6040 USMTF.

(1) Establish multi-TADIL general (common) parameters for OPTASK Link message.

(2) Establish NATO Link 1 parameters.

(3) Establish Link 4A parameters.

(4) Establish Link 11 parameters.

(5) Establish Link 11B parameters.

(6) Establish Link 16 parameters for OPTASK Link message.

(7) Establish interim JTIDS message specifications (IJMS) parameters.

(8) Establish mixed Link 16/IJMS parameters.

(9) Establish ATDL-1 parameters.

(10) Establish special reporting procedures.

(11) Establish special instructions (SPINS) as required.

(12) Establish requirements for operator receipt and acknowledgement.

(13) Coordinate with network managers and functional and component commanders.

(14) If necessary, revise OPTASK Link message in accordance with approving authority guidance and feedback.

h. Develop or establish additional guidance for execution of multi-TADIL architecture.

(1) Establish procedures for associated voice nets.

(2) Designate common TTP and develop pre-planned responses.

(3) Specify net entry and exit procedures.

(4) Specify link management code list to be used for voice coordination (X-ray/Timber codes).

(5) Provide tactical operational data (TACOPDAT) inputs.

(6) Conduct dynamic replanning.

(7) Conduct iterative planning in response to changing theater operations.

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ENCLOSURE C

JOINT INTERFACE CONTROL OFFICER (JICO) EXECUTION TASKS

1. Purpose. This enclosure identifies the execution tasks required for the JICO to manage a multi-TADIL network.

2. General. Appendix A to this enclosure depicts the multi-TADIL network execution cycle. The enclosure is a JICO process diagram depicting the general flow of information between the primary JICO tasks; both planning and execution.

3. JICO Execution Tasks. Appendix B to this enclosure identifies the tasks required by the JICO to support the planning process.

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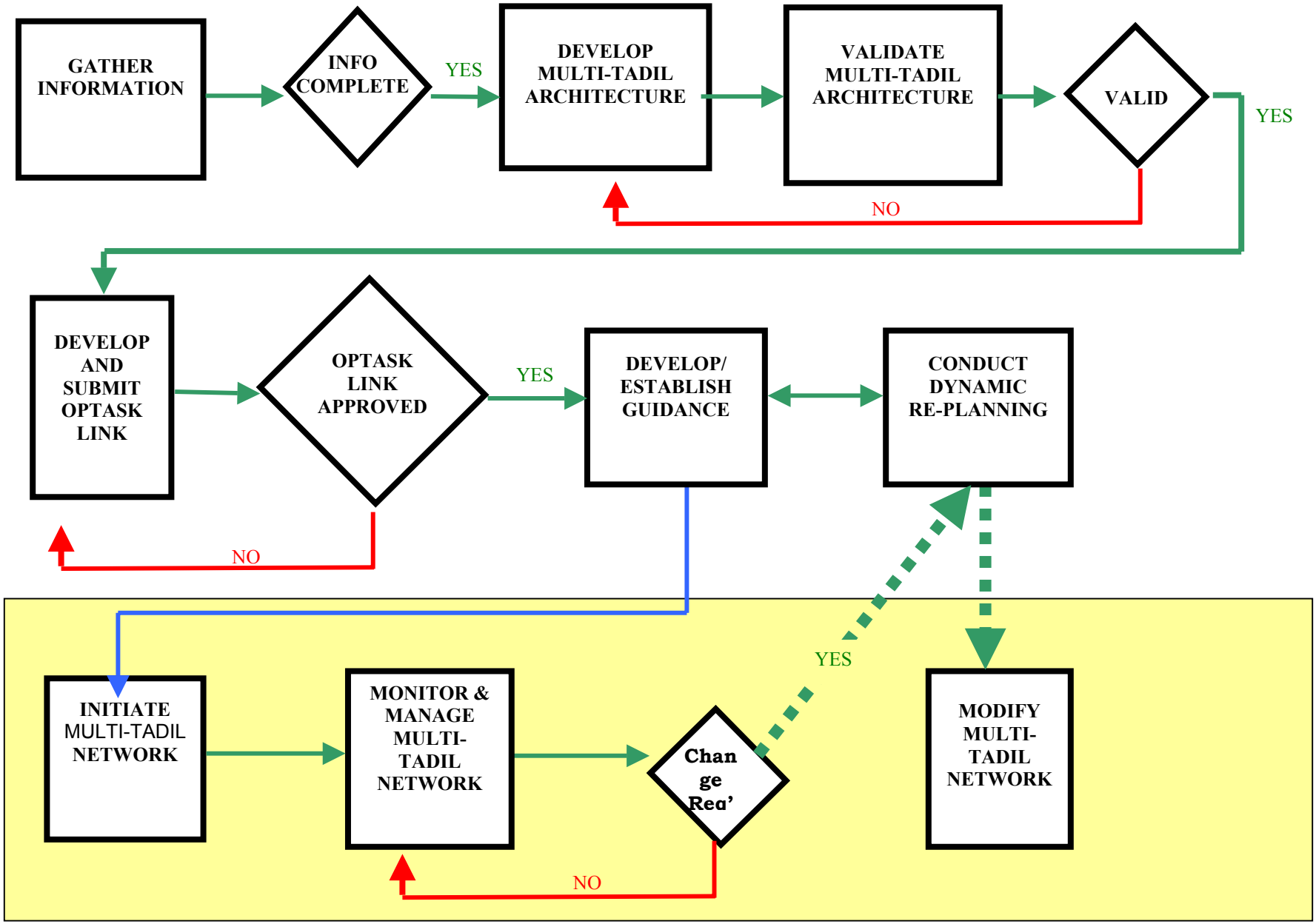
APPENDIX A TO ENCLOSURE C

JICO EXECUTION MATRIX



APPENDIX B TO ENCLOSURE C

JICO EXECUTION TASK LIST

1. Coordinate initiation and maintenance of the multi-TADIL network and associated voice nets.

a. Supervise JICO cell.

(1) Establish voice communications associated with JICO functionality.

(a) Verify communications plan and provide feedback to communications planners.

(b) Establish the multi-TADIL management voice network.

(2) Act as net control station (NECOS) for assigned voice nets.

(3) Establish and coordinate TADIL managers (including multi-national networks).

(4) Coordinate the activation of NCS for Link 11.

(5) Coordinate the activation gridlock reference unit (GRU).

(6) Coordinate the activation network time reference (NTR).

(7) Coordinate cryptographic usage.

(8) Direct/monitor/assign responsibilities and display assignments for IU data registration procedures.

(9) Direct/assign position references (PR) reporting responsibilities.

(10) Direct/assign TADIL relays.

(11) Direct/assign data forwarders.

(12) Designate navigation grid and assign navigation controllers.

(13) Assign data link reference point (DLRP).

(14) Coordinate IU net entry and exit procedures.

(15) Direct data fidelity drill assessments prior to conducting operations.

b. Manage the multi-TADIL networks and associated voice circuit IAW guidance provided.

(1) Monitor TADIL manager activities.

(2) Monitor and control the use of dial/variable track quality.

(3) Direct/control TADIL cryptographic rollover and coordinate cryptographic rollover authorization with higher authority.

(4) Assess all multi-TADIL participant platform capabilities and currently known interoperability problems based on actual participant configuration.

(5) Monitor/modify and approve the use of data filters within the multi-TADIL architecture and direct modification as appropriate.

(6) Monitor consistent and correct flow of track data (data extraction/ recording/ monitoring).

(7) Monitor the use and transmission of reference lines, points, and areas within the multi-TADIL network.

(8) Manage voice and data communications (secure and non-secure circuits under JICO control) for circuit discipline).

(9) Direct/assign/monitor IUs participating on Link 16 voice and track operational status.

(10) Direct/assign/monitor NTR.

(11) Direct/assign/monitor PR.

(12) Direct/assign/monitor relay platforms.

(13) Direct/assign/monitor GRU/designated radar reference unit.

(14) Direct/assign/monitor data forwarders.

(15) Direct/assign/monitor navigation grid and navigation controller.

(16) Monitor and maintain status IU TADIL status and associated network status.

(17) Determine/resolve network connectivity problems. Employ a graphic representation and matrices of all available JNL networks and generate a network recommendation based on planned participants.

(18) Determine optimal Link 16 net surveillance option pool initialization required by the tactical situation.

(19) Assess network design and employ tools to generate network design change requests.
Troubleshoot/resolve TADIL interoperability issues.

(20) Continually assess and reevaluate multi-TADIL support of tactical operations.

(21) Detect and monitor multi-TADIL signal levels.

(22) Continually monitor time slot duty factor usage for Link 16.

(23) Display anticipated line of sight (LOS) connectivity and provide recommended IU redeployment (if required).

(24) Coordinate interoperability issues with other network coordinators (JCTN, Intel, GDN, and JPN).

(25) Diagnose interoperability issues using data recording/extraction/playback and on-line/off-line problem analysis.

(26) Identify, direct and assist JTDC to resolve environment/ID/selective identification feature conflicts.

(27) Direct and assist JTDC to resolve dual designations.

(28) Direct and assist JTDC to resolve duplicate track numbers.

(29) Direct and assist JTDC to resolve inappropriate track reporting (incorrect filter settings, gridlock errors).

(30) Direct and assist JTDC to resolve track continuity problems.

(31) Coordinate execution of pre-planned and dynamic TADIL reconfiguration.

(32) Manage and coordinate changes directed by supported commanders (i.e., JFACC/AADC).

(33) Maintain operational logs in order to document significant operational events and MTN problems.

c. Modify the multi-TADIL networks and associated voice circuit IAW guidance provided.

(1) Modify Link 4A, 11, 11B, 16, ATDL, IJMS, and Link 1 parameters as required.

(2) Continuously monitor and provide recommended changes to track production areas/surveillance areas.

(3) Coordinate required changes with communication controlling agencies (e.g., JCCC).

(4) Propose changes or corrective action to ensure effective information exchange needed to support the changing operational situation to include scheduled and unscheduled maintenance.

(5) Pass network status reports to the JDN Operations Officer.

(6) Ensure distribution of JTIDS network/network description and terminal initialization loads for each platform participant.

(7) Coordinate/change Link 16 network to another network in the JNL, as required.

(8) Utilize IU net entry and exit (into an existing net) procedures.

b. Conduct post-operation analysis.

(1) Record IU performance parameters for selected time frame (receive quality, network control terminal, connectivity, track loading, etc.).

(2) Consolidate documented problems and capture potential interoperability problems.

(3) Archive appropriate extracted data for reanalysis.

(4) Submit lessons learned.

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ENCLOSURE D

STATEGIC NODING OF MULTI-TADIL ASSETS

1. General. In complex multi-TADIL environments ensuring connectivity between data link participants can be challenging. Link 16 is the backbone data link for joint Multi-TADIL network; however, line-of-sight is a limiting factor when it comes to connectivity between Link 16 platforms. Other environmental conditions such as terrain, foliage, and meteorological conditions (e.g., ducting and refraction) may limit, or deny, connectivity between Link 16 participants. Planners must overcome these Link 16 limiting factors by employing data link relay platforms (air and/or ground) at strategic locations (strategic noding) whose primary mission is to strengthen the Multi-TADIL network by extending Link 16 connectivity beyond line-of-sight (LOS). In addition to employing JTIDS platforms as strategic nodes, consideration should be given to capabilities that utilize long haul communications (e.g., SATCOM, SHF, SIPRNET, etc.) to extend TADIL connectivity in a joint environment.

2. Planning. One of the goals of a Multi-TADIL Network planner is to provide the means for the warfighter to receive a Common Tactical Picture (CTP). In order to provide a CTP, various TADILs will need to be tied together and forwarded via multiple transmission paths in order to reach their final destination. Strategic data link nodes, along with terrestrial and extraterrestrial communications, will be required to route information around the battlefield.

a. Strategic data link nodes may consist of ground, surface, or airborne platforms (or possibly combinations of the three). Site selection for strategic data link nodes is best accomplished during deliberate planning and codified in the OPLAN and Time-Phased Force and Deployment Data (TPFDD). Detailed connectivity studies and site surveys must be accomplished as part of the planning process to ensure nodal connectivity and reliability.

3. Strategic Node Capabilities. Equipment capable of providing a Link 16 and Link 11/B strategic noding capability exists within the joint forces. USAF Ground TACS and USMC Marine Air Control Squadrons both possess the capability to deploy standalone Link 16 strategic node. Airborne platforms such as fighters, tankers, or airborne early warning platforms (e.g., E-2C) may be utilized as strategic nodes/relays for short periods of time if the tactical situation dictates. Units who are capable of functioning as strategic nodes need to include in this capability in the unit mission statement.

a. Service systems commands (e.g., USAF Electronic Systems Command, USN SPAWAR, USA CECOM, or USMC Tactical Systems Support Activity) may possess equipment able to support Link 16 strategic noding and could possibly be used in times of crisis.

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ENCLOSURE E

JOINT INTERFACE CONTROL CELL – DEPLOYABLE (JICC-D)

1. Purpose. This enclosure establishes policy, guidance, and requirements for the use of deployable multi-TADIL assets of the JICC-D.

2. General. The JICC-D is a separately deployable component of the Joint Communications Support Element (JCSE) and FORSCOM Joint Interoperability Training Division both subordinate commands of the USCINCJFCOM. JICC-D will consist of multi-TADIL trained personnel and support staff, as well as a variety of TADIL analysis and communications systems, designed to provide rapid joint interface control SME augmentation to the geographic CINCs in times of contingency to areas requiring multi-TADIL networks.

3. Mission. The primary mission of the JICC-D will be to maintain the ability to provide simultaneous multi-TADIL planning, management, analysis, and training support. The JICC-D will be task organized, manned, integrated and equipped to provide this support. The JICC-D will provide CJCS approved, USCINCJFCOM directed contingency, crisis, and wartime operational multi-TADIL support to meet the needs of the combatant commands. The JICC-D will also be available to augment or provide CJCS approved, USCINCJFCOM-directed contingency and crisis multi-TADIL operational needs of allied, combined, and foreign governments to meet military agreements and arrangements between the United States and regional defense organizations or friendly foreign nations.

4. Policy. Because of the criticality of C4ISR support to the success of contingency operations, specific instructions for the deployment and use of C2 multi-TADIL tactical assets are required. The JICC-D as part of the greater JCSE, which is a subordinate command of the USCINCJFCOM will be employed as approved by the CJCS and directed by USCINCJFCOM.

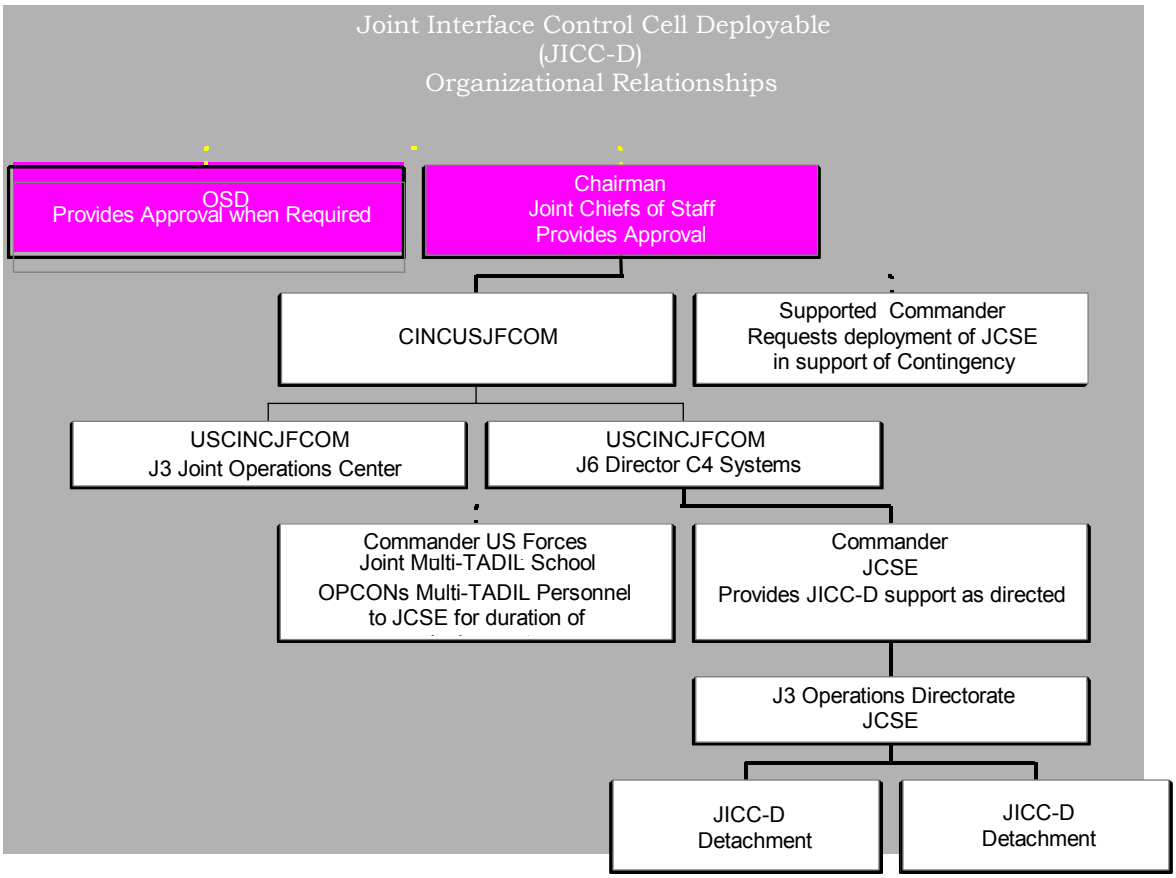

Figure E-1 JICC-D Organizational Relationship

5. Assets. Certain tactical C4ISR assets are essential for providing C2 connectivity, fused tactical data, and weapon systems support to deployed elements of a combatant commands JTF during contingency, crisis, and wartime situations. This capability includes transmissions systems, TADIL monitoring systems, air-sea-land based platforms, special trained personnel and ancillary equipment. These assets are centrally controlled by the USCINCJFCOM through the JCSE and FORSCOM in order to:

a. Provide readily available C2 multi-TADIL planning, management, analysis, and training support for deployed JTF headquarters and special CJCS approved requirements during contingency, crisis, and wartime situations. Normally, these personnel and equipment will be tasked for time-critical/sensitive operations of an expected short duration.

b. To provide short duration augmentation and restoration of multi-TADIL network facilities and to DOD mission areas or existing standing JTF operations.

c. To provide an on-call, standby unit that supports CINCs, and precludes each CINC from maintaining its own quick-reaction capability to support multi-TADIL network management JTFs. The term 'quick-reaction' in this case does not include surface combatant ships or airborne platforms capable of conducting multi-TADIL network management.

6. JICC-D Tasks.

a. Provide multi-TADIL network planning assistance to CINCs upon request as part of the operations plan (OPLAN)/concept plan (CONPLAN) development and update process.

b. Rapidly deploy a task organized cell of Joint multi-TADIL experts, support personnel and equipment to augment existing theater interface control operations by providing multi-TADIL management, analysis, and training to JICO staff and operators.

c. Rapidly deploy a task organized cell of multi-TADIL experts and equipment with the ability to provide a stand alone JICO execution facility capable of sustaining 24 hours/7 days multi-TADIL operations as directed by the JTF commander.

7. JICC-D Organization. The JICC-D is a task organized force of joint multi-TADIL trained personnel and equipment designed to support or augment CJCS approved, unified commanders, sub-unified commanders or JTF commanders during time sensitive crisis periods. The cell consists of trained JICO and multi-TADIL personnel in a flexible modular force package that can be deployed rapidly to meet JTF or theater shortfalls.

a. JICC-D personnel and equipment are contained as a self-deployable cell within the JCSE and FORSCOM. The JICC-D is under the operational direction of the CINCUSJFCOM. JICC-D operators will be sourced from Joint billets assigned to the FORSCOM Joint Interoperability Training Division and communications and/or support personnel from JCSE. Upon the activation of a JICC-D cell, OPCON of these personnel will be immediately transferred to the Commander JCSE.

b. In order to support two contingencies simultaneously, JICC-D will require two cells/detachments of equal manning and capability.

c. The composition of a typical JICC-D is as follows: A trained JICO who will serve as the officer-in-charge (OIC) for the JICC-D cell. The normal cell composition is listed in Table E-1 below. Cell composition should consist of personnel and equipment to allow for 24 hour/7 day a week operations.

Position	Number
JICC-D OIC	1
JICO Cell Watch Officer	3

Joint Track Data Coordinator (JTDC)	3
Multi-TADIL Network Coordinator	3
Communications Technician	3
	Total 13

Table E-1 JICC-D Cell Composition

8. JICC-D Operational Roles. In performance of the mission JICC-D personnel will perform the following:

a. Provide augmentation to permanent ICO staff/cell assisting in multi-TADIL management and analysis and provide requisite training to permanent and augment ICO personnel.

b. When deployed as a stand-alone JICC-D, provide multi-TADIL management and analysis as directed by the JICO.

c. Aid in the planning and re-planning of multi-TADIL operations in the theater of operations.

d. Coordinate with the JERT on matters concerning Link 16 network management, rapid network design/redesign, and dynamic timeslot reallocation.

e. Redeploy within 45 days unless extended by USCINCJFCOM. Earlier redeployment when it is determined by the supported commander that multi-TADIL operations have stabilized and can be sustained without JICC-D augmentation.

f. Aid and assist during peacetime training exercises for the purposes of exercise support and for gaining and maintaining operator proficiency.

9. JICC-D Equipment. In order to support missions, JICC-D equipment shall have the following characteristics:

a. Collapsible/expandable shelters to support equipment during stand-alone operations.

b. Organic power and environmental control unit (ECU) support. Multi-TADIL planning, analysis, management, and display automated data processing equipment (ADPE).

c. Organic communications support that allows operators to talk on high frequency (HF), ultra high frequency (UHF), satellite communications (SATCOM), secure and non-secure phone lines, as well as, long-haul terrestrial communications. SATCOM Capabilities or gateway (teleport) access must support CONUS reach back to enable JERT support.

d. JICC-D assets will be maintained in a high state of readiness to respond within 96 hours to no-notice and short-notice requirements.

10. Readiness. When deployed the JICC-D will be maintained and manned in a state of readiness so that they can be re-deployed in support of higher priority requirements. Anytime the readiness state of JICC-D personnel or equipment will adversely affect timely deployments, the JCSE will notify USCINCJFCOM J-3/J-6 and the Joint Staff J-6.

11. Command Relationships Between Supported and Supporting Combatant Commands. The supported and supporting CINC will accomplish the following:

a. The supported CINC will:

(1) Consolidate multi-TADIL requirements for any operation within his area of responsibility.

(2) Determine availability and suitability of component and organic equipment and personnel assets for meeting requirements. Identify consolidated requirement shortfalls and request JCSE, including JDICC-D, assets in accordance with CJCSI 6110.01(series) and this manual.

(3) Provide a current threat briefing to personnel supporting JICC-D before deployment.

b. Supporting CINC. USCINCJFCOM, with the approval of the CJCS, will direct deployment of JCSE and FORSCOM controlled assets to meet the supported CINCs requirements, including JICC-D. When using crisis action procedures, approval of the SECDEF may be required and will be requested by USCINCJFCOM via CJCS as necessary before directing deployment. The Joint Staff will recommend resolution of conflicting supported CINC's requirements.

12. Exercises. CINCs and their components are encouraged to use JCSE assets, including the JICC-D, in their annual exercise program to gain and maintain a broad understanding of available capabilities and assist in maintaining qualification of organic operations personnel. JCSE assets will normally support only one CJCS or CINC directed or coordinated exercise per quarter, with a minimum of two weeks between deployments. JCSE and JICC-D assets assigned to Reserve components will participate in at least one exercise per year. Requests for support for non-CJCS/CINC sponsored exercises will be submitted 45 days before the exercise begins.

13. Costs. All expenses will be borne by the requesting command. This responsibility includes deployment and return of Reserve component personnel performing scheduled active duty and priority airlift to and from the employment location.

14. Deployment or Redeployment Controls. The deployment or redeployment of JCSE assets will be directed and controlled by the USCINCJFCOM as approved by the CJCS for all-operational deployments and redeployments. JSCE assets, including JICC-D, will be under the operational control of the supported CINC as specified in

the Deployment and Execute Order. Deployment will not exceed 45 days for JCSE assets, including JICC-D. A plan for replacement of JCSE assets, including JICC-D assets, will be submitted to USJFCOM by the 30th day of any requirement expected to extend beyond 45 days.

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APPENDIX A TO ENCLOSURE E

GUIDANCE FOR REQUESTING THE JICC-D

1. This Appendix describes the procedures and formats to be used by the requesting authorities (i.e., combatant commands and components) when requesting use of JICC-D assets.

2. Requesting authorities submit their requirements for JICC-D support to the USCINCJFCOM and Joint Staff. As appropriate, the Services, Defense Information Systems Agency (DISA), Air Mobility Command and other commands and agencies should be included as information addressees. If additional requirements exist for the greater JCSE to support the requesting authority, it is encouraged that these requests be consolidated and submitted in accordance with USCINCJFCOMINST 2014.1 series.

3. Record messages to the USCINCJFCOM requesting JICC-D asset support will be in USMTF and submitted via the Defense Message System (DMS).

4. Requests for assets required for no-notice, no-plan, crisis action situations will include the following information:

a. Brief description of the operation to be supported.

b. Justification for not using component or organic assets.

c. Requirement details, such as:

(1) Type of JICC-D support required. (e.g., full cell, equipment only, personnel only or combination personnel/equipment deployed.

(2) Preferred multi-TADIL link details, tool sets, and number of support personnel.

(3) Date and time service is required.

(4) Planned duration and daily hours of operation.

(5) Frequencies, TADIL networks, designs and cryptographic materials required.

(6) Planned operating locations (including geographic coordinates, elevation, and nearest Defense Information Infrastructure (DII) interface points).

(7) Authorized EHF/SHF/UHF satellite access, including gateway entry point, as appropriate.

(8) Nearest geographically definable area (e.g., military installation, city) to include geographic coordinates.

(9) Availability of suitable power for deployed equipment, fuel, oil, and lubricants for vehicles and generators.

(10) Availability of logistic and administrative support (including billeting and messing support).

(11) Special personnel requirements (e.g., security clearances, immunizations, special clothing, passports, visas).

(12) Fund citation for personnel travel and per diem. This is MANDATORY. No formal action will occur until funds cite is provided.

5. A request for JICC-D support for a time sensitive crisis may be made telephonically to the USCINCJFCOM, Joint Operations Center, CDO at CML: (757) 322-6000 or DSN 836-6000. Telephonic requests will include the requirement details listed above plus a verbal confirmation that the requestor will fund. All telephonic requests will be followed by a message request within 48 hours.

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ENCLOSURE F

JTIDS ENGINEERING RESPONSE TEAM (JERT)

1. General. During contingency operations, Link 16 shall be the backbone link in the multi-TADIL architecture. As forces deploy into theater, the dynamics of the Link 16 network in use will be such that the potential for problems with platforms, the architecture, or the Link 16 network itself will increase exponentially. A Link 16 network requires constant and dedicated attention by competent personnel to diagnose the network and fix, or recommend fixes to, problems as they occur. The level of expertise required to perform these tasks exists in very small numbers within the JTIDS community. It is reasonable to suppose that standing ICO facilities may not posses personnel with the expertise level required to diagnose a Link 16 network to the detailed level required to rapidly effect change. A team of JTIDS engineers/SME's is required that can be activated during times of crisis that can assist JICO's during the crucial beginning phases of a contingency operation.

2. Organization and Team Composition. The JERT is a USCINCJFCOM sponsored activity consisting of Link 16 and multi-TADIL operational experts and network design engineers from various service organizations such as FORSCOM Joint Training Division, Service NDF, and potentially civilian corporations with links to DOD. The team will consist of six to eight members. Based on the mission and expected operational tempo, some, or all, of the team may be activated. A team leader and alternate team leader will be identified and he will be responsible for coordinating the administrative and operational aspects of the JERT.

3. Activation. Based on CINC operational requirements, the JERT will be activated during contingency operations and will be under OPCON of the requesting CINC. The timing of JERT activation will closely match that of the JICC-D. The JERT may be activated during peacetime to accomplish team training. The team will deactivate once support is no longer required or training goals have been met.

4. Facility. When activated, the JERT will be located in a CONUS facility with requisite communications to support their link analysis and network design suite. The JERT will require adequate connectivity to the supported theater for access to the Link 16 network in use, the theater JICO cell and other key operational participants as may be required. Examples of facilities suitable to support the JERT are the USCINCJFCOM JOC, Joint C4ISR Battle Center (JBC), DISA Network Operations Center (NOC) or the National Military Command Center (NMCC).

5. Mission. The JERT will work in direct support of the theater JICO during contingency operations. The JERT will:

a. Diagnose the operational Link 16 network and identify critical problems.

b. Recommend changes to the network and/or to platform configurations.

c. Provide parameters to the JICO for Dynamic Network Management as required.

d. Perform active Dynamic Network Management as required.

e. Develop parameters for network design/redesign.

f. Rapidly design/redesign, test, validate, and assist in the distribution of Link 16 networks in support of contingency operations.

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ENCLOSURE G

REFERENCES

f. Joint Publication 6-0, Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations, dated, 30 May 95.

g. Joint Publication 6-02, Joint Doctrine for Employment of Operational/Tactical Command, Control, Communications, and Computer (C4) Systems support to Joint Operations, 30 May 95.

h. US Joint Forces Command Instruction (USJFCOMINST) 2014.1 (series), Joint Communications Support Element (JCSE) assets.

i. CJCSM 6231.01 (series), Manual for Employing Joint Communications Systems, Joint Systems Management.

j. Architecture Product Report High Level Operational Graphic (OV-1) and description Joint Interface Control Officer Program (Draft), dated 15 Oct 99.

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ENCLOSURE H

GLOSSARY

1. Definitions. Upon promulgation of this manual, the definitions indicated below with the annotation "Recommended for Inclusion in JP 1-02," will be approved for inclusion in JP 1-02 (DOD Dictionary of Military Terms), barring reclama. Additional definitions referring to multi-TADIL operations may be found in CJCSM 6120.01 (JMTOP).

a. Common Operational Picture (COP) – The integrated capability to receive, correlate and display a common tactical picture that also incorporates planning applications and theater generated overlays/projections (e.g., meteorological and oceanographic (METOC), battle plans, force position projections). It will also display other pertinent information relevant to operational and strategic command and control including, but not limited to, information from the joint operational planning and execution system, status of readiness and training system, the Global Reconnaissance Information System and Air Tasking Officer messages. [Recommended for Inclusion in JP 1-02]

b. Common Tactical Picture (CTP) – An accurate and complete display of relevant tactical data that integrates tactical information from the multi-TADIL network, composite tracking network, intelligence network and ground digital network. The CTP enables C2, situational awareness (SA), and combat identification (CID) as well as supporting the tactical elements of all joint mission areas. The CTP along, with information from the joint planning network (JPN), contributes to the common operational picture (COP). [Recommended for Inclusion in JP 1-02]

c. Ground Digital Network - Composite of ground digital data links and networks that when interfaced distributes the ground force situation into the JDN (e.g., EPLRS, TCO, AFATADS, etc.)

d. Intelligence Network - Intelligence networks supporting the JDN are those information exchange mediums that support near and non-real time exchange of intelligence information (e.g., TIBS, TDDS, etc.).

e. Joint Composite Tracking Network (JCTN) – The joint composite tracking network (JCTN) is tracking fusion network supporting system-to-system exchange of multi-sensor data in real-time. The JCTN supports systems and firing units in the real-time detection and engagement of tactical threats. The JCTN provides systems and firing units real-time exchange of precision sensor measurement data and

weapons engagement signals to conduct engagements in real-time. [Recommended for Inclusion in JP 1-02]

f. Joint Data Network (JDN) – The JDN is a network of communications-electronics systems that carries tactical digital information link (TADIL) and multi-sensor early warning information within the theater in support of joint theater air, missile defense, and attack operations in the form of counter-air, interdiction, close air support (CAS), suppression of enemy air defense (SEAD) and time critical targeting (TCT) prosecution. Information is generally passed over the JDN in near-real time. [Recommended for Inclusion in JP 1-02]

g. Joint Interface Control Officer (JICO) - The JICO is the senior multi-tactical digital information link (TADIL) interface control officer (ICO) in support of JTF operations. The JICO is responsible for effecting planning and management of the joint multi-TADIL network within a theater of operations. [Recommended for Inclusion in JP 1-02]

h. Multi-Tactical Digital Information Link (TADIL) Network (MTN) - The multi-TADIL network is the multi-TADIL architecture (MTA), systems and associated tactical data that support the JDN production of the common tactical picture (CTP). It is the physical configuration, functional organization, and operational procedures used in the design, establishment, modification, and operation of TADIL networks and associated voice circuits. [Recommended for Inclusion in JP 1-02]

2. Acronyms. Upon promulgation of this manual, acronyms cited in the following list as indicated by an asterisk will be approved for inclusion in JP 1-02, barring reclama.

AADC	Area Air Defense Commander
AAMDC	Army Air Missile Defense Center
ACO	Airspace Control Order
ADPE	Automated Data Processing Equipment
ADA	Air Defense Artillery
AEW	Airborne Early Warning
AFATADS	Army Field Artillery Tactical Data System
AGF	Navy Command Ship
AO	Area of Operations
AOC	Air Operations Center
AOR	Area of Responsibility
AQD	Additional Qualification Designator
ARG	Amphibious Ready Group
ATDL-1	Army Tactical Data Link 1
C2	Command and Control
C4I	Command, Control, Communications, Computers, and Intelligence

C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAP	Crisis Action Planning
CAS	Close Air Support
CECOM	US Army Communications and Electronics Command
CG	Guided Missile Cruiser
CINC	Commander-in-Chief
CIU	Concurrent Interface Unit
CJCSI	Chairman Joint Chiefs of Staff Instruction
CJCSM	Chairman Joint Chiefs of Staff Manual
CJTF	Commander Joint Task Force
CML	Commercial
CONOPS	Concept of Operations
CONPLAN	Concept Plan
CONUS	Continental United States
*COP	Common Operational Picture
CRC	Control and Reporting Center
C/S/A	CINC, Services, Agency
*CTP	Common Tactical Picture
CVBG	Aircraft carrier Battle Group
DCN	Data Link Coordination Net
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DLRP	Data Link Reference Point
DMS	Defense Message Service
DOD	Department of Defense
ECU	Environmental Control Unit
EPLRS	Enhanced Position, Location, and Reporting System
EHF	Extremely High Frequency
ET	Electronics Technician
EW	Electronic Warfare
FJUA	Forwarding JTIDS Unit Link 11
FJUAB	Forwarding JTIDS Unit Link 11/11B
FJUB	Forwarding JTIDS Unit Link 11B
FORSCOM	U.S. Army Forces Command
FPU	Forwarding Participating Unit
FRU	Forwarding Reporting Unit
GBDL	Ground Based Data Link
GRU	Gridlock Reference Unit
HF	High Frequency
HQ	Headquarters
IAW	In Accordance With
ICO	Interface Control Officer
ID	Identification
IER	Information Exchange Requirement
IJMS	Interim JTIDS Message Specification

IM	Information Management
IME	Information Management Element
IT	Information Systems Technician
IU	Interface Unit
IW	Information Warfare
JAC	Joint Analysis Center
JBC	Joint Battle Center
JCCC	Joint Communications Control Center
JCS	Joint Chiefs of Staff
JCSE	Joint Communications Support Element
*JCTN	Joint Composite Tracking Network
*JDN	Joint Data Network
JERT	Joint Link Engineering Response Team
JFC	Joint Force Commander
JFACC	Joint Forces Air Component Commander
JFLCC	Joint Forces Land Component Commander
JFMCC	Joint Forces Maritime Component Commander
JIADS IWG	Joint Integrated Air Defense Interoperability Working Group
JIC	Joint Intelligence Center
JICC-D	Joint Interface Control Cell - Deployable
*JICO	Joint Interface Control Officer
JIT	Joint Interoperability Training
JMTOP	Joint Multi-TADIL Operating Procedures
JMTS	Joint Multi-TADIL School
JNDL	Joint Network Design Library
JNL	JTIDS Network Library
JOC	Joint Operations Center
JP	Joint Publication
JPN	Joint Planning Network
JSEWG	JICO Systems Engineering Working Group
JTAMDO	Joint Theater Air and Missile Defense Organization
JTDC	Joint Track Data Coordinator
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JU	JTIDS Unit
LCC	Fleet Command Ship
LNO	Liaison Officer
LOS	Line of sight
MAW	Marine Aircraft Wing
MAJIC	multi-TADIL Advanced Joint Interoperability Course
MCTSSA	Marine Corps Tactical Systems Support Activity
MIL-STD	Military Standard
MOS	Military Occupational Specialty
MTA	Multi-TADIL Architecture
MTACC	Marine Tactical Air Command Center

*MTN	Multi-TADIL Network
NAF	Numbered Air Force
NATO	North Atlantic Treaty Organization
NEC	Navy Enlisted Classification Code
NC	Navigation Controller (JTIDS)
NCS	Net Control Station
NDF	Network Design Facility
NDL	Network Design Loads
NOC	Network Operations Center
NTR	Network Time Reference
OIC	Officer-in-Charge
OPCON	Operational Control
OPLAN	Operational Plan(s)
OPR	Office of Primary Responsibility
OPTASK Link	Operational Tasking Data Links
OPTASK	Operational Tasking
OS	Operations Specialist
PR	Position Reference
PU	Participating Unit
RICO	Regional ICO
RU	Reporting Unit
SA	Situational Awareness
SATCOM	Satellite Communications
SECDEF	Secretary of Defense
SHF	Super High Frequency
SIAP	Single Integrated Air Picture
SICO	Sector ICO
SME	Subject Matter Expert
SPAWAR	Space and Naval Warfare Systems Command
SPINS	Special Instructions
TACON	Tactical Control
TACOPDAT	Tactical Operational Data
TACS	Theater Aerospace Control System
TADIL	Tactical Digital Information Link
TAOC	Tactical Air Operations Center
TCO	Tactical Control Operations System
TDDS	Tactical Data Distribution System
TDS	Tactical Data System
TFCC	Tactical Flag Command Center
TIBS	Tactical Information Broadcast System
TPFDD	Time Phased Force and Deployment Data
TSN	Track Supervision Net
TTP	Tactics, Techniques, Procedures
UHF	Ultra high frequency
UJTL	Universal Joint Task List
USAF	United States Air Force

USCENTCOM	United States Central Command
USEUCOM	United States European Command
USJFCOM	United States Joint Forces Command
USJFCOMINST	USJFCOM Instruction
USPACOM	United States Pacific Command
USSOUTHCOM	United States Southern Command
USSPACECOM	United States Space Command
USMC	United States Marine Corps
USMTF	US Message Text Format
USN	United States Navy
VPN	Voice Product Net