



Department of Defense DIRECTIVE

NUMBER 5100.79

November 21, 1975

DTACCS

SUBJECT: Worldwide Military Command and Control System Engineer

References: (a) through (k) listed in enclosure 1

1. PURPOSE

This Directive:

- 1.1. Defines responsibilities and functions for system engineering of the Worldwide Military Command and Control System (WWMCCS);
- 1.2. Establishes the WWMCC System Engineering Organization (WSEO);
- 1.3. Prescribes the missions and functions of the WWMCC System Engineer (WSE), and;
- 1.4. Defines relationships among the Director, WWMCC System Engineering (DWSE), the WSE, and the DoD Components.

2. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Joint Chiefs of Staff, the Defense Agencies and activities, and the Unified and Specified Commands (hereinafter referred to collectively as "DoD Components").

3. DEFINITIONS

Terms used in this Directive are defined in enclosure 2.

4. GENERAL CONCEPTS

4.1. The WWMCCS is defined and general concepts are discussed in DoD Directive 5100.30, "Worldwide Military Command and Control Systems (WWMCCS)" (reference (a)).

4.2. The communication of warning, intelligence, decision and command between the National Command Authorities (NCA) and the DoD Components requires the most responsive, reliable and, where required, survivable system that can be provided with available resources.

4.2.1. While specific requirements for information and a command and control capability by individual DoD Components are major factors in the design of command and control systems, the capability of such a system to function as an integral part of the entire network of worldwide command and control capabilities is of prime importance. This requires that command and control systems of all DoD Components be configured, developed and operated for support of the NCA as well as for their specific missions.

4.2.2. Interfaces between all WWMCCS components, subsystems and supporting systems must provide the necessary degree of interoperability. Communications links must provide for real time connection wherever necessary.

4.2.3. Computerized data formats must be sufficiently common to support interoperability. All other details of subsystem configuration must be aimed at providing a balance of performance capabilities that is consistent through the WWMCCS and that provides maximum efficiency and effectiveness to overall worldwide command and control.

5. MISSION

The WWMCC System Engineer, in consultation with the appropriate Services/Agencies, will:

5.1. Provide integration and technical guidance for the implementation of the WWMCCS architecture and the technical evolution of the WWMCCS; specify system and supporting system interfaces; and, participate in the test and evaluation of the WWMCCS.

5.2. Specify interfaces at lower levels, as required, to ensure interoperability of strategic and tactical communications equipment.

5.3. Provide a technical focus for efforts required for the successful attainment of approved command and control capabilities.

5.4. Devote primary attention to the engineering of national-level and joint systems with principal focus directed to those significant requirements of WWMCCS identified by the approved WWMCCS architecture.

5.5. Monitor the command and control programs of the DoD Components to ensure that WWMCCS Council decisions relative to the WWMCCS architecture are reflected in programs of the Department of Defense.

5.6. Make primary recommendations to the Director, Telecommunications and Command and Control Systems (DTACCS) (DoD Directive 5135.1, reference (i)), and/or the Assistant Secretary of Defense (Intelligence) (ASD(I)) (DoD Directive 5115.1, reference (j)), who will directly control those resources associated with WWMCC system engineering. This control will be exercised through various mechanisms to include recommending the release/deferral of funds; prior approval before reprogramming can be undertaken; special instructions in the annual fiscal guidance; "fencing" of funds or other administrative techniques.

6. RESPONSIBILITIES

6.1. The WWMCCS Council provides policy guidance, approval of the initial WWMCCS architecture and subsequent revisions thereto, and program recommendations for the configurations development and operation of command and control capabilities. The DTACCS has staff responsibility for the architecture and will report to the WWMCCS Council on architectural matters. The approved WWMCCS architecture will provide the basic guidance for engineering the WWMCCS, including definition of system and subsystem required capabilities and performance characteristics.

6.2. The Director, Defense Communications Agency (DCA), acting in the separate capacity of Director, WWMCC System Engineering, assists in the implementation of the policy guidance and decisions of the WWMCCS Council. He is responsible for and directs the activities of the WSE. The Director, WWMCC System Engineering, will function under the staff supervision of the DTACCS for organizational matters and for technical matters relating to system architecture, design, development, procurement,

performance of equipment (including software), system procedures, interoperability, tests, and standardization involved in WWMCCS engineering. The Director, WWMCC System Engineering, will report to the Chairman, Joint Chiefs of Staff, for matters pertaining to doctrine; to operational policies and procedures; to the development and validation of requirements; to operational policies and procedures relating to warning and intelligence; to functional interoperability; and to the conduct, by the JCS, of operational tests, exercises and evaluation. Matters not covered in the preceding statements will be referred to the WWMCCS Council for resolution. The DWSE will provide copies of all WWMCC system engineering products to the appropriate DoD Components.

6.3. The WWMCC System Engineer, as Head of the WSEO, and under the guidance and direction of the Director, WWMCC System Engineering, is responsible for:

6.3.1. Performing general system engineering of the WWMCCS, to include providing system definition and developing technical or engineering plans necessary to translate the approved WWMCCS architecture into program development and implementation. He will provide technical reviews of DoD command, control, and communications programs, which are part of, provide support to, or function in conjunction with WWMCCS, to identify any inconsistencies with the approved architecture and will recommend technical alternatives, if appropriate.

6.3.2. Ensuring the necessary degree of compatibility, technical interoperability, and balanced capabilities among WWMCCS components and subsystems.

6.3.3. Technically guiding the implementation of assigned WWMCCS programs and projects.

6.3.4. Providing technical assistance in the evaluation, allocation, and control of WWMCCS resources and programs.

6.3.5. Serving as a primary technical advisor on WWMCCS matters to the Secretary of Defense and the Chairman, Joint Chiefs of Staff.

6.3.6. Providing technical assistance to the JCS and the Commanders of the Unified and Specified Commands in evaluating the operational effectiveness of the WWMCCS.

6.3.7. Providing engineering support to the Unified and Specified Commanders as requested and when approved by DTACCS or the Chairman, Joint Chiefs of Staff.

7. FUNCTIONS

7.1. In accomplishing his mission, the WSE, under the guidance and direction of the Director, WWMCC System Engineering shall:

7.1.1. Define technical concepts and technical design, performance characteristics, and procedural criteria in engineering the WWMCCS in consonance with the approved WWMCCS architecture.

7.1.2. Provide assistance as requested in the fulfillment of the DTACCS responsibilities for recommending revision of the WWMCCS architecture to meet changing policy, doctrine, requirements, system environments, threats, technology, and resources.

7.1.3. Develop and promulgate technical plans for transition from the existing WWMCCS to a system that realizes the objectives of the approved WWMCCS architecture. Translate the architecture into integrated programs and projects for implementation by the DoD Components, as directed by the Secretary of Defense. Review and contribute to WWMCCS-related plans of other DoD Components to ensure compatibility with the approved WWMCCS architecture and with other overall WWMCCS policy, doctrine, and planning. Verify technical integrity among operational requirements, required operational capabilities, the approved architecture, and approved or proposed WWMCCS programs and projects.

7.1.4. Consult with the appropriate Service/Agency and recommend tasking of the Military Departments and Defense Agencies for the accomplishment of specific programs and projects in support of national and joint-level WWMCCS capabilities.

7.1.5. Assist in the development and evaluation of WWMCCS alternatives and programs by:

7.1.5.1. Consulting with the appropriate Services/Agencies and recommending priorities for the implementation of WWMCCS programs.

7.1.5.2. Providing assistance and technical guidance to the DoD Components in the development of Area Coordinating Papers, Decision Coordinating Papers, and Program Memoranda, as outlined in DoD Instruction 5000.2 (reference (b)).

7.1.5.3. Participating in the Defense Systems Acquisition Review Council (DSARC), as specified in DoD Directive 5000.26 (reference (c)), reviews, and

processes when WWMCCS programs are being considered, to include reporting to the DSARC his technical evaluation, as specified in DoD Directive 5000.3 (reference (k)), of these programs and their adequacy to support the decision under consideration.

7.1.5.4. Providing technical assistance relative to WWMCCS programs to the DTACCS, ASD(I), and other DoD Components as necessary, during the Planning Programming Budget System (PPBS) cycle.

7.1.5.5. Nominating where appropriate, WWMCCS programs for priority consideration under the provisions of DoD Instructions 4400.1 and S-4410.3 (references (d) and (e)).

7.1.6. Maintain cognizance of the acquisition of WWMCCS components and subsystems. Identify technical, schedule or interface relationships that impact programs implementation.

7.1.7. With the assistance of the DoD Components, plan, design, develop, and publish technical standards, procedures, and interface criteria for WWMCCS components and subsystems. Where critical to the target architecture, specify interface criteria and interoperability characteristics for WWMCCS supporting systems. Monitor the adherence to such standards, procedures, and criteria by the DoD Components.

7.1.8. Recommend to the DTACCS and/or the ASD(I) specific program and budget changes and new program initiatives based on validated requirements necessary for implementation of the WWMCCS architecture.

7.1.9. Monitor and coordinate with the DoD Components on research and development efforts that have significant impact on the WWMCCS. Recommend additions or modifications to the Research, Development, Test, and Evaluation (RDT&E) programs of the DoD Components that are necessary to support evolution to a system that realizes the objectives of the approved WWMCCS architecture.

7.1.10. Assist in evaluating the operational effectiveness of the WWMCCS by providing technical objectives and criteria inputs to exercise plans, participating in exercises, analyzing exercise results and conducting technical tests, studies and evaluations.

7.1.11. Identify needed improvements to the WWMCCS based on evaluations of technical effectiveness to support operational requirements. Provide results of such evaluations to the appropriate DoD Components.

7.1.12. Assist the Chairman of the Joint Chiefs of Staff in the identification, validation, and prioritization of operational requirements for the WWMCCS by providing technical assessment and technical alternatives to be used by the designated DoD Component in the preparation of technical analyses and cost estimates pertaining to WWMCCS operational requirements.

7.1.13. Coordinate with the Manager, National Communications System (NCS) and, as authorized by the Secretary of Defense, with other governmental agencies on matters pertaining to external compatibility and interoperability of the WWMCCS. When assigned, coordinate the technical aspects of WWMCCS matters as may arise between the United States and NATO and other governments.

7.1.14. Perform other tasks as designated by the Secretary of Defense.

7.2. The DoD Components shall, as appropriate:

7.2.1. Manage WWMCCS research, development, test, and acquisition programs and projects, as tasked by the Secretary of Defense.

7.2.2. Develop, if necessary, and provide copies of reports and data, as requested by the WSE on research, development, test, acquisition, and operation of WWMCCS components, subsystems, and supporting systems.

7.2.3. Ensure compliance with technical standards, procedures, and interface criteria published by the WSE.

7.2.4. Advise the WSE of planned changes in WWMCC systems, subsystems, or supporting systems prior to implementation.

7.2.5. Encourage free and complete technical information exchange between activities under their control involved in WWMCCS program development, implementation, and operation and the WWMCC System Engineer.

8. ADMINISTRATION

8.1. The WWMCC System Engineering Organization shall be established as a separate organizational entity in the DCA. The Director, DCA is designated as the Director, WWMCC System Engineering in addition to his responsibilities as set forth in DoD Directives 5105.19, 5100.41, and 5105.44 (references (f), (g), and (h)).

8.2. The WSE shall be a civilian of the appropriate grade. The appointment of the WSE shall be by the Secretary of Defense at the nomination of the DTACCS with the concurrence of the Chairman of the Joint Chiefs of Staff.

8.3. The DWSE will appoint other personnel, civilian and military, to the WSEO. The DTACCS shall be consulted on the assignment of supervisory personnel reporting directly to the WSE.

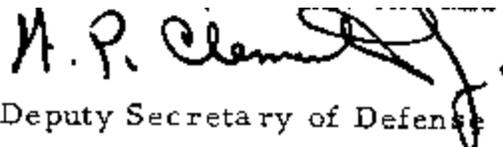
8.4. The WSEO will be authorized such personnel, facilities, funds, and other administrative support as deemed necessary by the Secretary of Defense.

8.5. The DoD Components, within the limitation of available resources, shall provide support as necessary for the WWMCC System Engineering Organization.

8.6. The Defense Communications Agency will provide administrative logistic and specialized staff support to the WWMCC System Engineer. The authorities delegated in DoD Directive 5105.19 (reference (f)) apply to the WWMCC System Engineering Organization.

9. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Two copies of implementing regulations shall be forwarded to the Director, Telecommunications and Command and Control Systems (DTACCS) within 60 days.


Deputy Secretary of Defense

Enclosures - 2

- E1. References, continued
- E2. Definitions

E1. ENCLOSURE 1

REFERENCES, continued

- (a) [DoD Directive 5100.30](#), "Worldwide Military Command and Control System (WWMCCS)," December 2, 1971
- (b) [DoD Instruction 5000.2](#), "The Decision Coordinating Paper (DCP) and the Defense Systems Acquisition Review Council (DSARC)," January 21, 1975
- (c) DoD Directive 5000.26, "Defense Systems Acquisition Review Council (DSARC)," January 21, 1975
- (d) DoD Instruction 4400.1, "Priorities and Allocations - Delegation of DO and DX Priorities and Allocations Authorities, Rescheduling of Deliveries and Continuance of Related Manuals," November 16, 1971
- (e) DoD Instruction S-4410.3, "Policies and Procedures for Implementing Approved National and Military Urgency Determinations (U)," November 19, 1974
- (f) [DoD Directive 5105.19](#), "Defense Communications Agency (DCA)," October 8, 1974
- (g) [DoD Directive 5100.41](#), "Arrangements for the Discharge of Executive Agent Responsibilities for the National Communications System (NCS)," January 19, 1972
- (h) DoD Directive 5105.44, "Military Satellite Communications (MILSATCOM) Systems Organization," October 9, 1973
- (i) DoD Directive 5135.1, "Director, Telecommunications and Command and Control Systems," January 17, 1974
- (j) DoD Directive 5115.1, "Assistant Secretary of Defense (Intelligence)," January 18, 1972
- (k) DoD Directive 5000.3, "Test and Evaluation," January 19, 1973

E2. ENCLOSURE 2

DEFINITIONS

For the purpose of this Directive, the following definitions and terms apply:

E2.1.1. Compatibility. Capability of two or more items or components of equipment or material to exist or function in the same system or environment without mutual interference.

E2.1.2. General System Engineering. The application of recognized engineering skills, techniques, and principles to the development of overall system concepts, associated technical design, and performance criteria used in planning, engineering, and implementing a system.

E2.1.3. Interoperability

E2.1.3.1. 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.

E2.1.3.2. The condition achieved among communications electronics systems or items of communications electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases.

E2.1.4. WWMCCS Components. As enumerated in paragraphs 5.1. through 5.5., of DoD Directive 5100.30 (reference (a)).

E2.1.5. WWMCC Subsystems. Those functional, technical or organizational systems or subsystems that are integral to a WWMCCS Component or to the WWMCCS as an entity; includes designated WWMCCS warning systems and WWMCCS communications systems and networks.

E2.1.6. WWMCCS National-Level and Joint Systems. The National Military Command System (NMCS), the Command and Control Systems of the Unified and Specified Commands, and WWMCC Subsystems specifically intended to support national-level command and control capabilities.

E2.1.7. WWMCC Supporting Systems. Those systems and subsystems of the DoD Components that contribute to the capabilities described in section 5., DoD Directive 5100.30 (reference (a)).

E2.1.8. WWMCCS Architecture. The development of a total WWMCCS configuration and the planning for orderly acquisition of an adequately integrated and standardized system that is balanced in terms of capability, survivability, and cost.

E2.1.9. WWMCCS Architecture Revision. The process of developing or changing fundamental, conceptual system alternatives to the approved WWMCCS architecture in response to changes in policy, doctrine, requirements, system environment, threats, technology or resources.

E2.1.10. WWMCC Systems Engineering Organization. The organization established herein to perform WWMCC system engineering and consisting of the WWMCC System Engineer and the WWMCC System Engineering Office functioning under the guidance and direction of the Director, WSE.