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Test and Evaluation

# CRITICAL OPERATIONAL ISSUES AND CRITERIA (COIC) PROCEDURES AND GUIDELINES

Headquarters
Department of the Army
Washington, DC
1 March 1996

**Unclassified**

# SUMMARY of CHANGE

DA PAM 73–3
CRITICAL OPERATIONAL ISSUES AND CRITERIA (COIC) PROCEDURES AND GUIDELINES

This new Department of the Army pamphlet--

- Reference and implements the policies and procedures contained in DODI 5000.2, DODD 8120.2, AR 25-3, and AR 73-1 (chap1).

- Provides an overview of the COIC process (chap 2).

- Details COIC responsibilities (chap 3).

- Provides the general details necessary for the timely development and approval of COIC (chap 4).

- Relates the COIC to the operational requirements documents, operational employement considerariotns, performance exit criteria, operational evaluation, and additional operational issues and associated measures (AOIAM); and provides considerations and guidelines for COIC development (chap 5).

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# *Department of the Army Pamphlet 73–3

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# CRITICAL OPERATIONAL ISSUES AND CRITERIA (COIC) PROCEDURES AND GUIDELINES

By Order of the Secretary of the Army:

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**History.** This Update printing publishes a new DA Pamphlet. This publication has been reorganized to make it compatible with the Army electronic publishing database. No content has been changed.

**Summary.** This pamphlet provides guidance and procedures to implement test and evaluation policy for material and information systems as promulgated by AR 73-1. It provides detailed guidance on preparation, staffing, and approval of critical operational issues and criteria.

**Applicability.** The provisions of this pamphlet apply to the Active Army, the Army National Guard and the U. S. Army Reserve.

**Proponent and exception authority.** The proponent of this pamphlet is the Deputy Under Secretary of the Army (Operations and Research) (DUSA OR)). The DUSA(OR) has the authority to approve exceptions to this pamphlet that are consistent with law and controlling regulation. The DUSA (OR) may delegate this approval authority, in writing, to a division chief under his or her supervision within the proponent agency that holds the grade of colonel or the civilian equivalent.

**Interim changes.** Interim changes to this pamphlet are not official unless the Administrative Assistant to the Secretary of the Army authenticates them. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

**Suggested Improvements.** Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA, Office of the Chief of Staff of the Army. (Test and Evaluation Management Agency (DACS-TE), 200 Army, Pentagon, Washington, DC 20310-0200.)

**Distribution.** Distribution of this publication is made in accordance with the requirements of DA Form 12-09-E, block number 5471, intended for command Levels D and E for the Active Army, the Army National Guard and the U.S. Army Reserve.

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# Chapter 1
# Introduction

## 1–1. Purpose

*a.* This pamphlet provides content and processing guidance for development and approval of critical operational issues and criteria(COIC) during systems acquisition, modification, and upgrade. The objectives of this guidance are an approved set of COIC for each system. These COIC will—

(1) Serve as meaningful and relevant operational concerns and bottom line standards for the milestone III decision.

(2) Focus the system independent operational evaluation and foster coordination among the program managers (PM)/material developers (MATDEV)/system developers (SYSDEV), combat developers(CBTDEV)/functional proponents (FP) and operational evaluators throughout the system's acquisition.

(3) Are available in a timely manner to support the Test and Evaluation Master Plan (TEMP) process.

(4) Conform to the needs of the material and information systems acquisition decision review members and authorities, and meet the expectations of COIC and TEMP approval authorities.

*b.* This pamphlet applies to all material systems acquired under AR 70 series guidance, Classes I through V information mission area (IMA) systems (particularly automated information systems (AIS)acquired under AR 25 series guidance, and developmental changes to these material and IMA systems. A developmental change is a preplanned product improvement to achieve existing operational requirements or a system design change to meet revised operational requirements.

*c.* This pamphlet provides COIC content as well as processing guidance. Content guidance includes overall COIC purpose, focus, and format as well as detailed definitions, in addition and "dos" and"don'ts" applicable to the development of each COIC element (that is, issue, scope, criteria, and rationale statements) and applicable notes.

*d.* Detailed COIC approval-processing procedures are provided for Headquarters, Department of the Army (HQDA) and Office of the Secretary of Defense (OSD) test and evaluation (T&E) oversight systems. (That is, material systems and theater/tactical AIS COIC approved by the Assistance Deputy Chief of Staff for Operations-Force Development (ADCSOPS-FD), and strategic and sustaining base AIS COIC, approved by the Director of Information Systems for Command, Control, Communications and Computers (DISC4)as well as those systems delegated to the combat developer and functional proponent for COIC approval. These approval processing procedures use the Training and Doctrine Command (TRADOC) as the CBTDEV example for material systems and theater/tactical AIS.

## 1–2. References

Required and related publications and prescribed and referenced forms are listed in Appendix A.

## 1–3. Explanation of abbreviations and terms

Abbreviations and special terms used in this pamphlet are explained in the glossary.

# Chapter 2
# Overview

## 2–1. Background

*a.* Prior to 1985, COIC, even though they were developed by Combat Developer, were a part of the operational evaluation planning process, wherein the operational issues addressed each component of operational effectiveness, (for example, equipment, software and/or system mission capability, survivability, interoperability, and so forth.) and operational suitability (for example, reliability, availability and maintainability (RAM), logistics supportability, training, manpower and personnel integration (MANPRINT), and safety,)as applicable. The CBTDEV designated with an asterisk (*), from among the total body of operational issues, those considered to be critical. While some consideration was obviously given to critical issue selection (regulations mandated many areas as critical), no specific consideration was given to the designation of critical criteria. All were, therefore, considered critical. This produced COIC sets with numerous issues (normally 12 to 15) and criteria(normally about 50) often reflecting objective performance expectations. Consequently, operationally adequate systems had little chance of satisfying all of these expectations.

*b.* In September 1985, after several "lessons learned"experiences with systems during acquisition, HQDA changed its COIC philosophy. COIC were to be few in number, encompass the total system, focus on the system mission, be operationally relevant, and be realistic (to system maturity) for the supported decision. They were not to deal with the myriad of elements/components of operational effectiveness and suitability. It was hoped that a system capable of satisfying essential operational needs/expectations would have a fair chance of moving forward in the acquisition process. The 1985 COIC philosophy continues today with further "lessons learned" applied to mature the process.

## 2–2. Current COIC philosophy

Critical operational issues and criteria are those decision maker key operational concerns, with bottom line standards of performance which, if satisfied, signify the system is operationally ready to proceed at the milestone III (MS III) acquisition decision, that is, the full production decision for material systems. COIC are not pass/fail absolutes but are "show stoppers" such that a system falling short of the criteria should not proceed at MS III unless convincing evidence of its operational effectiveness and suitability is provided to the decision makers/authorities. COIC are few in number reflecting total operational system concern and employing higher order measures.

## 2–3. Focus and timing

COIC are initially prepared and approved for inclusion in the TEMP approved prior to Milestone I (MS I). These initial COIC are based on the Mission Needs Statement (MNS), initial Operational Requirement Document (ORD) (functional description (FD) for IMA systems), and initial (cost and Operational Effectiveness Analysis(COEA) with other documentation when needed. The COIC are updated and approved based on the updated ORD (MNS for information systems)and COEA for inclusion in the TEMP approved for milestone II (MSII).COIC continually focus on MS III full production type decisions;therefore, revision subsequent to MS II should only be necessary for significant program redirection, preplanned product improvements, and other modifications or upgrades responding to a new or revised operational requirement (MNS/ORD). The issues will be based on the MNS and should remain stable during the acquisition process. The criteria reflect the maturity of the operational requirement (ORD, FD, and COEA); therefore, they may be "soft" initially (MS I TEMP)but will be "firm" standards of performance for the MS II TEMP.Performance exit criteria with appropriate operational consideration may be used to guide the intermediate milestone decisions (for example, MS II and low rate initial production (LRIP). Such exit criteria will be documented in the TEMP, but not as part of the COIC.

## 2–4. COIC structure

COIC are prepared in sets which include the issues; for each issue, a scope, appropriate criteria, rationale; and applicable notes.

*a. Critical operational issues (COI).* Those key operational concerns, expressed as questions which, when answered completely and affirmatively, signify that a system, (or a developmental system change), is operationally ready to transition at the MS III (full production) decision.

*b. Scope for the issue.* A statement of the operational capabilities, definitions and conditions which focus the issue and guide its evaluation.

*c. Criteria for the issue.* Those standards of operational performance which, when all are achieved, signify that the issue has been satisfied.

*d. Rationale for the criteria.* Basis for criteria and an audit trail of their link to the operational requirement (MNS/ORD/FD and the COEA).

*e. Notes for the COIC.* Both mandatory and system peculiar notes apply. The mandatory notes are modified to be appropriate for the system.

# Chapter 3
# Functions

## 3–1. Overview

The functions of key HQDA staff and Army components relative to COIC are outlined below. NOTE: The parenthetical "()"expression following a listed function identifies the staff element, agency/activity or subordinate element which performs the function.

## 3–2. Headquarters, Department of the Army (HQDA)

*a.* HQDA establishes and administers Army T&E policy, including COIC policy. (Deputy Under Secretary of the Army (Operations and Research) (DUSA OR)).

*b.* Develops and coordinates Army COIC policy and procedures for material systems and theater/tactical (T/T) IMA systems.Approves and distributes COIC procedures for these systems. (Deputy Chief of Staff for Operations (DCSOPS), ADCSOPS-FD/Operational Requirements Division (ATTN: DAMO-FDR)).

*c.* Develops and coordinates Army COIC policy and procedures for strategic and sustaining base (S/SB) IMA systems. Approves and distributes COIC procedures for these systems. (DISC4, Vice Director of Information Systems for Command, Control, Communications, and Computers (VDISC4)/Chief, Analysis and Evaluation Office (ATTN:SAIS-AE).

*d.* Incorporates appropriate COIC policy and procedures in Army regulations and pamphlets governing T&E, material and information systems acquisition, and operational need and requirements definition and documentation. (Test and Evaluation Management Agency(TEMA), Secretary of the Army (Research, Development and Acquisition)(SARDA), and (DCSOPS).

*e.* Provides the interface between Department of the Army (DA) and OSD on T&E policy matters, including COIC policy, and system specific T&E documentation (TEMP, operational T&E, (OT&E) plan (TEP), OT&E reports, and the Director of Operational Test and Evaluation (DOT&E) reports to Congress),(DUSA (OR) and (TEMA).

*f.* Maintains and distributes a schedule reflecting due dates for TEMP delivery to HQDA and OSD for approval (included are the last approval date(s) for the TEMP and the following documents as applicable to the system that support TEMP submission: System Threat Assessment Report (STAR), MNS, ORD and COIC.) Currently, the STAR and ORD are normally not produced for information systems (TEMA).

*g.* Distributes DA and OSD responses (approval, disapproval or comments) on Army TEMPs-providing copies of those dealing with COIC to DCSOPS, DISC4, and TRADOC (TEMA).

*h.* Approves COIC for inclusion in MS II TEMPs for material and T/T IMA systems, which require DA or OSD approval. Programs applicable are acquisition categories (ACATs) I and II material systems, Classes II through IV T/T IMA systems chosen by DA and developmental system changes to these systems, this group includes theater/tactical strategic IMA systems. NOTE: Class I IMA systems are ACAT I material systems per AR 25-3 (ADCSOPS-FD).

*i.* Approves COIC for all Classes II through IV non-theater/tactical S/SB IMA systems (VDISC4).

*j.* Coordinates and staffs COIC within HQDA, schedules and coordinates COIC approval briefings within DCSOPS and DISC4, and distributes approved COIC (DAMO-FDR/SAIS-AE).

*k.* Reviews TEMPs submitted to DA for approval, for inclusion of DA approved COIC (DAMO-FDR/SAIS-AE).

## 3–3. Combat Developer

*a.* Develops COIC for assigned material systems (ACATs I through IV) and Classes II through V T/T IMA systems in coordination with the operational evaluator, appropriate COEA analyst and PM/MATDEV/SYSDEV. (TRADOC School/Center/Subordinate Command CBTDEV or TRADOC System Manager (TSM).)

*b.* Coordinates COIC for assigned material and T/T IMA systems with the Operational Test and Evaluation Command (OPTEC), the PM/MATDEV/SYSDEV, DAMO-FDR and others as required establishing an approval recommendation. Headquarters (HQ) TRADOC System Staff Officer (TRASSO) for those systems requiring DA/OSD TEMP approval;TRADOC School/Center CBTDEV for others.

*c.* Approves and distributes COIC for assigned ACAT III and IV material and Class V T/T IMA systems not on the OSD T&E oversight list. (TRADOC Center/School Commander, Commandant, or Assistant Commandant.)

*d.* Approves and distributes COIC for inclusion in the MS I TEMP, (including those COIC revisions responding to any program redirection between milestones I and II) for those assigned material and T/T IMA systems requiring DA/OSD TEMP approval. (HQ, TRADOC, Deputy Chief of Staff for Combat Developments (DCSCD).)

*e.* Approves and submits COIC and subsequent updates to HQDA(ATTN: DAMO-FDR) through Commander OPTEC (ATTN: CSTE-ZA)for approval by ADCSOPS-FD for inclusion in the MS II TEMP for those material and T/T IMA systems requiring DA/OSD TEMP approval (HQ, TRADOC, DCSCD).

*f.* Prepares and briefs the ORD-COIC crosswalk "Horse Blanket" to obtain ADCSOPS-FD approval of COIC for which he/she is the approval authority. Chap 2 discusses preparation of the"Horse Blanket"). (TRADOC Center/School/Subordinate Command CBTDEV or TSM.

*g.* Attends the DA ADCSOPS COIC approval briefings. (HQ TRADOC TRASSO, TSM or TRADOC Center/School/Subordinate Command CBTDEV.)

*h.* Assists the PM/MATDEV/SYSDEV during development of performance exit criteria by providing applicable operational considerations. (TRADOC Center/School/Subordinate Command CBTDEV or TSM.)

## 3–4. Functional proponent for strategic and sustaining base information management area systems

*a.* Develops COIC for assigned Classes II through V S/SB IMA systems in coordination with the operational evaluator and the PM/SYSDEV.

*b.* Submits COIC for assigned Classes II through IV non-theater/tactical S/SB IMA systems to HQDA (ATTN: SAIS-AE)for VDISC4 approval.

*c.* Submits COIC for assigned Classes II through IV theater/tactical S/SB IMA systems to HQDA (ATTN: DAMO-FDR) for ADCSOPS-FD approval.

*d.* Approves COIC for assigned Class V S/SB IMA systems.

*e.* Prepares MNS/FD-COIC relationship briefing for Classes II through IV S/SB IMA systems and briefs to VDISC4 to obtain COIC approval.

## 3–5. Operational Test and Evaluation Command

*a.* Advises the CBTDEV proponent, IMA functional proponent, and HQDA whether COIC can be tested, measured, or evaluated and provides appropriate structure for the operational evaluation.(-OPTEC/Operational Evaluation Command (OEC) with necessary TRADOC Experimentation command (TEXCOM) support).

*b.* Reviews proposed COIC during CBTDEV proponent/FP development and approval processing. (OPTEC/OEC with necessary TEXCOM support.)

*c.* Endorses COIC from CBTDEV to HQDA. (Commanding General (CG), OPTEC).

*d.* Participates during DA (ADCSOPS-FD and DISC4) approval briefings (OPTEC/OEC).

*e.* Includes DA or CBTDEV/FP, as applicable for the category or class of system, approved COIC in TEP (OEC/TEXCOM).

*f.* Assists the MATDEV and CBTDEV in formulation of MS II and LRIP performance exit criteria (OPTEC/OEC).

### 3–6. Program manager/material developer for material systems

*a.* Advises CBTDEV whether COIC criteria are consistent with contract specifications and reflects appropriate material and software maturity expectations for the MS III (full production)decision (PM/MATDEV).

*b.* Reviews proposed COIC during the CBTDEV development and approval processes and participates during DA (ADCSOPS-FD) approval briefings (PM/MATDEV).

*c.* Incorporates (or assures the incorporation of) a complete set of approved COIC in the TEMP, part IV, paragraph 4B or as a TEMP Annex per DA Pam 73-2 (forthcoming) (PM/MATDEV).

*d.* Formulates in conjunction with the independent operational evaluator (IOE) and CBTDEV, performance oriented exit criteria for MS II and LRIP decision reviews and documents them as appropriate in the TEMP (separate from the COIC) (PM/MATDEV).

### 3–7. Program Manager/System Developer for IMA Systems

*a.* Advises CBTDEV for T/T IMA systems and FP for S/SB IMA systems whether COIC criteria are consistent with contract specifications and reflect appropriate material and software maturity expectations for the MS III decision (PM/SYSDEV).

*b.* Reviews proposed COIC during the development and approval process for the CBTDEV for T/T IMA systems, and the FP for S/SB IMA systems and participates during DA (ADCSOPS-FD/DISC4) approval briefings (PM/SYSDEV).

*c.* Incorporates (or assures the incorporation of) a complete set of approved COIC in the TEMP, part IV, paragraph 4B or as a TEMP Annex (PM/SYSDEV).

# Chapter 4
# COIC Development and Approval Processes

## Section I
## Overview

### 4–1. COIC Applicability

*a. Material acquisition programs.* COIC are required for all material system acquisition programs (ACATs I through IV). COIC apply to developmental and nondevelopmental acquisition strategies. COIC are also required for preplanned product improvements (P3I) to achieve the existing ORD requirements, and system modifications and upgrades engendered by new or revised ORDs. Revision or refinement of existing COIC is not required for other system changes, such as, fixes to system shortcomings, required during MS III full production authorization or routine engineering changes supporting production.

*b. IMA systems acquisitions.* COIC are required for all Classes II through V IMA systems.COIC are also required for preplanned block improvements for these systems and for software changes in response to changes to the requirements document (MNS). Other changes such as post deployment software support change packages do not require revision or refinements to the COIC. NOTE: Class I IMA systems are handled as major (ACAT I) material systems acquisitions; Class VI IMA systems are exempt from TEMP development and thus are exempt from COIC requirements.

*c. Operational tests and evaluations not supporting acquisition decisions.* COIC apply only to operational evaluations supporting material and IMA systems acquisition decisions. Thus, the TRADOC Force Development Evaluation (FDEV) including the Force Development Test and Experimentation (FDTE) and the Concept Evaluation Program(CEP) and other similar operational evaluations by the CBTDEV, the training developer (TRNGDEV) or the FP do not require COIC. A set of operational issues and criteria (OIC) (similar to additional operational issues and associated measures (AOIAM) described in chapter 3 of this pamphlet) are developed and approved by the CBTDEV, TRNGDEV, or FP for these evaluations. OPTEC may however use data from these tests and evaluations for operational evaluation of the COIC for acquisition decisions.

### 4–2. COIC and the material and IMA acquisition processes

The relationship of COIC to the material and IM acquisition processes is depicted graphically in figure 4-1. As noted, the most significant difference is that while material systems may use "soft"criteria for COIC developed for the MS I TEMP, the objective for IMA systems is "firm" criteria at MS I.

*a. COIC purpose.* The CBTDEV proponent/FP produces COIC as a basis for subsequent determination by the appropriate Department of Defense(DOD)/Army decisions authority whether a system is operationally ready for full production-that is, to proceed beyond MS III. The issues are based on the MNS and thus seldom change. The criteria are based on the operational requirement of the ORD, COEA and FD. For material systems, criteria mature as system acquisiitoon proceeds and requirements mature for MS II. Thus, while "firm" criteria are to be available for MS II, "soft" (less stringent) criteria may be used for COIC supporting the MS I TEMP. For AIS, the operational requirements in the FD mature earlier with the resulting objective of "firm" criteria before MS II. Since COIC continually focus on defining the operationally good enough system to proceed into full production at MS III, they should have significant influence on performance exit criteria throughout the acquisition process. The MATDEV/SYSDEV/PM should work with the CBTDEV/FP, IOE, and the developmental evaluator during development of these exit criteria.The COIC, along with exit criteria, support TEMP development and updates as well as conduct of independent operational evaluations across the acquisition phases. Since the purpose of COIC is to support MS III decisions, COIC updates are not required after MS III except when developmental system changes occur requiring their own MS III event. Developmental system changes include preplanned product improvement programs to fill existing operational requirements (ORD/FD), or system modifications and upgrades to satisfy a new or revised ORD for material systems or MNS for AIS.

*b. COIC development and coordination.* The CBTDEV for material systems and T/T AIS, and the FP for S/SB AIS develop the COIC in coordination with the SYSDEV/MATDEV/PM, IOE and others deemed appropriate (including the COEA analyst for ACATs I and II systems). Before approval or submission to DA, a formal position is obtained from the PM/MATDEV/SYSDEV and OPTEC and, if applicable, staffing with the DA action officer is accomplished.

*c. COIC approval authorities.*

(1) The ADCSOPS-FD approves COIC for inclusion in the MS II TEMP and subsequent COIC revisions/updates for the following: ACATs I and II material programs; Classes II through IV T/T IMA systems;ACATs III and IV material systems on the DA and OSD T&E oversight lists; and Class V T/T IMA (including theater/tactical strategic IMA systems) systems designated for DA or OSD T&E oversight. NOTE: Class I IMA systems are ACAT I material systems per AR 25-3.

(2) The VDISC4 approves COIC for Classes II through IV non-theater/tactical S/SB IMA systems.

(3) CBTDEV Command, (for example, TRADOC) approves COIC for the following: The MS I TEMP for those systems having COIC approved by ADCSOPS-FD for the MS II TEMP (see Paragraph 4-2, c(1)), changes to these COIC between MS I and MS II but not intended for the MS II TEMP; all ACAT III and IV material

systems not on the DA and OSD T&E oversight lists, and all Class V T/T IMA systems not on the DA and OSD T&E oversight lists.

(4) The FP approves COIC for Class V S/SB IMA systems.

## 4–3. Synchronized MNS/ORD/FD, COIC and TEMP schedules

Tables 4-1 through 4-5 provides COIC process synchronization schedules for material and IMA systems. They should be used by the PM/MATDEV/SYSDEV, operational evaluator, and CBTDEV/FP for planning and management of these events during acquisition programs to minimize the chance of milestone decision review (MDR)delay. During program planning, the dates should be viewed as bottom line dates for on-schedule delivery of the TEMP and additional time should be provided before COIC approval if possible. This will allow for refinements/rework to occur during coordination and approval processing when needed. During program execution, if these schedule dates cannot be achieved then the PM/MATDEV/SYSDEV must coordinate with the affected event action agents/managers to determine if an extraordinary work-around solution exists. Event action agents/managers must advise the PM/MATDEV/SYSDEV when it is evident that a breach of schedule will occur. AR 73-1 policy also requires an Army approved TEMP (DUSA (OR) approval per DA Pam 73-2), one year prior to test start for Test Schedule and Review Committee (TSARC)acceptance of the outline test plan (OTP) into the Five Year Test Program (FYTP). The overall program and particularly the operational testing schedule must integrate TEMP approval requirements.

*a. Schedules for DA T&E oversight material systems COIC for MS I and II TEMPs.* Table 4-1 provides COIC processing deadlines synchronized with those of the ORD and TEMP events supporting MS I and II for these systems. DA T&E oversight material systems are those requiring DA (DUSA (OR)) to approve the TEMP (ACAT I and II programs and DA and OSD T&E oversight ACAT III and IV programs). COIC for these systems are approved by the ADCSOPS-FD for inclusion in the MS II TEMP. COIC for the MS I TEMP are approved by the CBTDEV. The additional 20 days processing time for ACAT ID programs results from the Defense Acquisition Board (DAB) TEMP processing requirement. As noted in the table, those systems subject to coordination with the Ballistic Missile Defense Organization (BMDO) require an additional 21 days.

**Table 4–1**
**COIC Synchronization Schedule: DA T & E Oversight Materiel Systems, MS I and II**

| | ACT I ID Minimum Days Prior To | | ACATS I & II Minimum Days Prior To | |
|---|---|---|---|---|
| Event | MS I | MS II | MS I | MS II |
| CBTDEV APPROVED ORD | 205 | 250 | 185 | 230 |
| DA APPROVED ORD | 145 | 190 | 125 | 170 |
| CBTDEV APPROVED COIC | 115 | 160 | 95 | 140 |
| DA (DCSOPS) APPROVED COIC | N/A | 120 | N/A | 100 |
| COIC TO MATDEV | 115 | 115 | 95 | 95 |
| MATDEV APPROVED TEMP | 85 | 85 | 65 | 65 |
| DA APPROVED TEMP | 65 | 65 | 45 | 45 |

Notes:
[1] The event of the left of the table should occur at least the tabulated number of days prior to MS I and II.
[2] Add 21 Days to all events if the system requires BMDO coordination.

*b. Schedules for out-of-cycle COIC changes for DA T&E oversight material systems.* Table 4-2 provides a similar schedule for these changes.Out-of-cycle COIC changes are those revisions subsequent to MS I,(that is, between MS I and II) as well as those revisions after MS II which do not support revision of t he TEMP for MS II. They could be the result of a program redirection, P3I, change in the ORD, or refinement based on new information. Refinements should only be made when vital to the program because of the level of review (DA, OSD and Congress) and the implications to the COIC. A system change for a P3I or responding to an ORD (MNS for an IMA system) revision should be the only reason to update the COIC for the MS III TEMP or subsequent to MS III. A TEMP update does not require revised COIC.COIC reflect the minimum operational need for a decision to proceed at MS III impacted by system maturation (P3I), operational requirement revision (new need), or requirement maturation(increased understanding). ADCSOPS-FD approves COIC for the MS II TEMP and subsequent COIC updates for these systems. CBTDEV approves earlier versions of COIC for these systems. Timing is keyed to DA approval of the TEMP and not a specific MDR since COIC revisions are not tied to specific milestone TEMPs.

**Table 4–2**
**COIC SYNCHRONIZATION SCHEDULE OUT-OF-CYCLE COIC CHANGES TO DA T&E OVERSIGHT MATERIEL SYSTEMS**

| | Minimum number of days prior to DA TEMP approval | |
|---|---|---|
| Event | MS I to MS II | After MS II |
| DA APPROVED ORD CHANGE | 80 | 125 |
| CBTDEV APPROVED COIC | 50 | 95 |
| DA APPROVED COIC | N/A | 55 |
| COIC TO MATDEV | 50 | 50 |
| MATDEV APPOVED TEMP | 20 | 20 |
| DA APPROVED TEMP | 0 | 0 |

Notes:
[1] The events on the left side of the table should be scheduled at least the number of days tabulated prior to the scheduled DA TEMP Approval.

*c. Schedules for Classes II through IV theater/tactical IMA systems.* Table 4-3 provides similar COIC synchronization schedules for these IMA systems MS I and II TEMPs and out-of-cycle changes. ADCSOPS-FD approves the COIC for the MS II TEMP and subsequent changes. CBTDEV approves the COIC for the MS I TEMP.

**Table 4–3**
**COIC Synchronization Schedule: Classes II through IV Theater/Tactical IMA Systems**

| | Minimum Days for In-Cycle Approval | | Minimum Days for Out-of-Cycle TEMP Changes | |
|---|---|---|---|---|
| Event | MS I | MS II | MS I-II | Post MS II |
| DA APPROVED MNS | 125 | 170 | 80 | 125 |
| CBTDEV APPROVED FD | 125 | 170 | 80 | 125 |
| CBTDEV APPROVED COIC | 95 | 140 | 50 | 95 |
| DA (DCSOPS) APPROVED COIC | N/A | 100 | N/A | 55 |
| PM/SYSDEV APPOVED TEMP | 65 | 65 | 20 | 20 |
| DA APPROVED TEMP | 45 | 45 | 0 | 0 |

Notes:
[1] The event of the left of the table should take place at least the tabulated value prior to MS I.

*d. Schedules for strategic/sustaining base IMA systems.* Table 4-4 provides similar COIC synchronization schedules for these IMA systems, addressing in-cycle COIC preparation and revisions for MDRs as well as out-of-cycle changes. VDISC4 is the HQDA

approval authority for all COIC including revisions for Classes II through IV S/SB IMA systems. The functional proponent approves COIC for Class V S/SB IMA systems.

**Table 4–4**
**COIC Synchronization Schedule: Classes II through V Strategic/ Sustaining Base IMA Systems**

| | Minimum Days prior to MS I-IV for In-Cycle Approval | | Minimum Days for Out-of-Cycle Approval |
|---|---|---|---|
| Event | Classes II-IV | Class V | Classes II-IV |
| DA VALIDATED MNS | 170 | 105 | 125 |
| FP APPROVED FD | 170 | 105 | 125 |
| FP APPROVED COIC | 140 | 75 | 95 |
| DA (SAIS-AE) COIC PRE-REVIEW | 100 | N/A | 55 |
| DA (VDISC4) APPOVED COIC | 93 | N/A | 48 |
| COIC TO PM/TIWG | 79 | 60 | 34 |
| PM/SYSDEV APPROVED TEMP | 65 | 45 | 20 |
| DA APPROVED TEMP | 45 | N/A | 0 |

*e. Schedules for non-DA and OSD T&E oversight material systems and theater/tactical Class V IMA systems.* Table 4-5 provides similar COIC synchronization schedules for these systems. Non-DA and OSD T&E oversight material systems are ACATs III and IV programs which have not been selected by DA or OSD for TEMP approval. The CBTDEV approves all COIC for these material and IMA systems.

**Table 4–5**
**COIC Synchronization Schedule: Non-DA and OSD T&E Oversight Materiel Systems and T/T Class V IMA Systems,.MS I and II**

| | ACATS III & IV Minimum Days Prior to | | CLASS V T/T Minimum Days Prior to | |
|---|---|---|---|---|
| Event | MS I | MS II | MS I | MS II |
| DA APPROVED MNS | 120 | 120 | 120 | 120 |
| CBTDEV APPROVED ORD | 120 | 120 | N/A | N/A |
| CBTDEV APPROVED FD | N/A | N/A | 120 | 120 |
| CBTDEV APPROVED COIC | 75 | 75 | 75 | 75 |
| COIC T MATDEV | 75 | 75 | N/A | N/A |
| COIC TO SYSDEV/TIWG | N/A | N/A | 75 | 75 |
| MATDEV APPROVED TEMP | 45 | 45 | N/A | N/A |
| SYSDEV APPROVED TEMP | N/A | N/A | 45 | 45 |

## Section II
## COIC Process for ACAT I and II Material Programs, Classes II through IV Theater/Tactical IMA Systems, OSD T&E Oversight Systems and other systems selected for HQDA ADCSOPS-FD Approval

### 4–4. Forward
The following pages provide detailed process descriptions for development, coordination, and approval of COIC for ACAT I and II material programs, Classes II through IV T/T IMA systems, OSD T&E oversight systems, and other DA selected systems requiring COIC approval by HQDA (ADCSOPS-FD) corresponding to the processes in figures 4-2 through 4-7. Descriptions apply to the specific figure referenced for the paragraph (for example, paras 4-5. a and b are to be used with fig 4-2). Procedures also apply to COIC revisions for these systems. MNS/ORD/FD, COIC and TEMP synchronization schedules discussed in Section I above is reflected in these process charts. Dotted/dashed boxes and lines in the figures are information events/blocks. When appropriate, "NOTES" are added to highlight actions called for in the paragraph or to provide some additional insight into the action required. These charts use TRADOC as an example for the CBTDEV proponent.

### 4–5. CBTDEV proponent drafts COIC for MS I TEMP(Figure 4-2)
*a. Front-end analysis.* The process begins with the CBTDEV proponent conducting a COIC front-end (comparative) analysis. This analysis uses as its base the MNS approved at milestone 0 and draws from the subsequent ORD/FD formulation process. Additional considerations include, but are not necessarily limited to: baseline intelligence products (or the STAR, if available); system critical mission(s) and function(s);system employment and sustainment concepts; similar system(s)acquisition experiences; studies/ analyses used to justify the system requirement; the COEA, when available; and recent COIC approval process experiences (approved examples, questions, rejections and guidance). NOTE: The object of front-end analysis is to "get smart"on the system so that the COIC are properly focused and accurately reflect bottom line critical mission accomplishment and sustainment performance standards.

*b. Draft COIC for MS I TEMP.* In conjunction with submission of the draft ORD to HQ, TRADOC for approval, the CBTDEV proponent prepares draft COIC focused on the MS III (full production) decision. The critical issues, being based on the MNS, are unlikely to change as the system proceeds through the acquisition phases. Criteria being based on the ORD/FD and reflecting MS III minimum operational expectations, on the other hand, may initially be "soft" (that is, lack specificity).Detailed preparation considerations and guidelines are found in chapter 5 of this pamphlet.

### 4–6. COIC coordination and approval for MS I TEMP (Figure 4-3)
*a. CBTDEV proponent coordination.* Following receipt of the TRADOC approved ORD (forwarded to HQDA not later than (NLT) 185 days prior to MS I), the CBTDEV proponent makes appropriate refinements to the draft COIC and coordinates them with the PM, operational evaluator and TRADOC Analysis Command (TRAC). Coordination with the PM will ensure synchronization with technical requirements definitions including software requirements, integrated logistics support (ILS)requirements and system specifications to be documented in a request for proposal (RFP). Coordination with the operational evaluator will ensure that COIC are testable, measurable, or otherwise evaluatable and will also provide an appropriate structure for the operational evaluation. Additionally (Block 3A), because COIC focus on the MS III full production decision, the PM with assistance from the CBTDEV and IOE formulates system performance exit criteria for the MS II(development) decision review. Coordination with TRAC ensures appropriate COEA synchronization. NOTE: A discussion of the relationship of performance exit criteria to COIC can be found in Section IV, this chapter.

*b. CBTDEV proponent submits COIC for approval.* Not later than 140 days prior to MS I, the CBTDEV proponent forwards the coordinated, final draft COIC to HQ, TRADOC for review and approval. Concurrently, the PM includes the draft COIC in the draft TEMP to maintain currency of the TEMP.

*c. HQ TRADOC quality check.* At HQ, TRADOC, the TRASSO performs a final quality check and, if necessary (Block 5A), revises the COIC with assistance of the CBTDEV proponent. When required, the PM and/or operational evaluator may assist.

*d. MS I TEMP COIC approval staffing.* Following DA approval of the ORD and NLT 125 days prior to MS I, with a 2 week suspense, the TRASSO formally staffs the final draft COIC within HQ, TRADOC, and with HQ, OPTEC and the PM/MATDEV.Additionally, the TRASSO effects action officer (A/O) level coordination with DCSOP (ATTN: DAMO-FDR). If HQDA changes the ORD during approval, TRASSO takes the lead to effect necessary

changes to the COIC before initiating formal approval staffing with assistance as required (Block 5A).

*e. COIC approval for MS I TEMP.* The TRADOC DCSCD approves the COIC NLT MS I minus 95 days and provides them to the PM for inclusion in the TEMP, part IV, paragraph 4B or as a TEMP Annex. If changes are directed, the process loops back to Block 5A, and the TRASSO effects the changes with the necessary assistance. NOTE: An obvious pitfall here is timing. Since re-staffing could take as much as two additional weeks for significant changes, emphasis must be placed on not impacting the MS I schedule.

*f. ACAT ID and BMDO programs COIC timeliness.* Add 20 days to each schedule NLT date for ACAT ID programs to allow for TEMP approval for DAB processing. If ACAT ID or other OSD T&E oversight programs require TEMP coordination with BMDO, an additional 21 days must be added to each scheduled NLT date.Consequently, an ACAT ID requiring BMDO coordination on the TEMP would add an additional 41 days to the schedule times provided in the chart.

### 4–7. MS I TEMP approval and operational requirement maturation (Figure 4-4)

*a. TEMP approval processing.* The PM/PEO submits ACATs I and II programs, OSD T&E oversight ACATs III and IV programs and T/T IMA systems, and DUSA (OR)selected systems TEMPs to TEMA for review and DUSA (OR) approval 65 days in advance of MS I. TEMA forwards the approved TEMP to OSD for review and approval 45 days in advance of MS I. The DA approved COIC arean integral part of the TEMP. For Classes II through IV IMA systems not on the OSD T&E oversight list, the PM submits the TEMP to DISC4 for approval. If COIC changes are directed at either the DA or OSD level (Block 9A), an ad hoc working group (comprised of the DCSOPS (ATTN: DAMO-FDR) A/O, or DISC4 (ATTN: SAIS-AE) A/O, TRASSO, CBTDEV proponent, PM, and operational evaluator) resolves the COIC changes and their impacts(Block 9B). The TRADOC DCSCD reviews and approves revised COIC(Block 9C) for incorporation into and resubmission of the revised TEMP by the PM (Block 9D to Block 9). An approved TEMP is required at MS I.

*b. OPTEC early operational assessment (EOA)planning.* Following receipt of the approved TEMP, OPTEC incorporates the COIC into the TEP for the EOA and uses them, along with any decision authority approved performance exit criteria, as a basis for finalization of AOIAM (See Chapter 5) to guide the test and evaluation effort.

*c. CBTDEV identifies required COIC revisions.* The operational requirement matures as a system progresses through its acquisition phases. As a result, revisions to the COIC may be necessary to ensure that they continue to adequately and accurately represent features/capabilities critical to mission performance and provide a proper focus for t he decision process.Additionally, the CBTDEV proponent needs, when and where possible, to restructure criteria to reflect a greater level of specificity(firmness) than that found in the "soft" criteria of the initial set. The CBTDEV proponent identifies the need for a COIC update by actively participating in and maintaining full cognizance of the system's developmental progress. First among many potential sources of change is the acquisition decision memorandum (ADM), which documents decisions and directives of the milestone decision review(MDR) and approves the system concept baseline (MS I) and exit criteria for the next milestone. Additional sources include, but are not limited to, results from the early user test and evaluation(EUTE)/EOA (Block 11), emerging results from the COEA, the ORD/FD refinement/revision process (to culminate in HQ TRADOC approval 230 days in advance of MS II), and development of the RAM Rationale Report and specifications for the RFP.

### 4–8. COIC update by the CBTDEV for MS II TEMP(Figure 4-5).

*a. CBTDEV proponent updates COIC.* The CBTDEV proponent updates COIC as necessary, to include the addition of "firm" MS III criteria (that is, provides a specific, usually quantitative performance threshold). Concurrently(Block 13A), the CBTDEV proponent works with the operational evaluator and PM to develop LRIP and/or MS III exit criteria. NOTE:Exit criteria for MS II were formulated Pre-MS I, approved during MS I, and documented in the ADM.

*b. CBTDEV proponent COIC coordination.* The CBTDEV proponent coordinates draft COIC with the PM, operational evaluator and TRAC, and NLT 185 days in advance of MS II submits the final draft COIC to HQ, TRADOC for review and approval.Concurrently, the PM includes the final draft COIC in the TEMP for test integration working group (TIWG) staffing.

*c. HQ, TRADOC quality check of COIC.* At HQ, TRADOC, the TRASSO performs a final quality check and, if changes are necessary (Block 16A), revises the COIC with the assistance of the CBTDEV proponent. Additional assistance, when required, is drawn from the PM and/or operational evaluator.

*d. CBTDEV COIC approval staffing for MS II TEMP.* Not later than 170 days in advance of MS II, HQ, TRADOC(TRASSO) formally staffs the final draft COIC within HQ TRADOC and with HQ, OPTEC and the PM. Additionally, the TRASSO effects A/O level coordination with the HQDA, DCSOPS (ATTN: DAMO-FDR). DA must approve the revised ORD before this coordination may proceed.)Since submission and quality checks may occur before ORD approval, changes may be needed to be consistent with the ORD. If this is the case, the TRASSO effects necessary changes with assistance as required (Block 16A). NOTE: For ACAT ID programs, for which the Under Secretary of Defense (Acquisition) is the milestone decision authority, NLT dates are 15 days earlier than reflected in the text or on the flow charts to accommodate Army review and approval in advance of the DAB review.

*e. CBTDEV (HQ TRADOC) submits COIC for MS II TEMP to HQDA.* The DCSCD, HQ TRADOC approves the COIC for TRADOC NLT 140 days in advance of MS II, and submits them (Block 18A) through the CG, OPTEC for endorsement to HQDA (ATTN: DAMO/FDR) for ADCSOPS-FD approval. Advance copies are provided to HQDA (ATTN:DAMO/FDR), the PM, OEC, appropriate TRADOC centers and schools and others.

*f. ACAT ID and BMDO programs COIC timeliness.* Add 20 days to each scheduled NLT date for ACAT ID programs to allow for TEMP approval for DAB processing. If ACAT ID or other OSD T&E oversight programs require TEMP coordination with BMDO, an additional 21 days must be added to each scheduled NLT date.Consequently, an ACAT ID program requiring BMDO coordination on the TEMP would add an additional 41 days to the schedule times provided in the chart.

### 4–9. COIC approval processing for MS II TEMP(Figure 4-6).

*a. CG, OPTEC endorsement of MS II TEMP COIC.* CG, OPTEC concurs in the COIC and endorses them to HQDA(ATTN: DAMO-FDR) NLT 115 days in advance of MS II as testable, measurable, or otherwise evaluatable and capable of providing an appropriate structure for the operational evaluation in support of the MS III full production decision. In the event of CG, OPTEC non-concurrence, DCSCD, TRADOC (Block 19A) directs revision (return to Block 16A) or opts to allow the non-concurrence to remain an issue for resolution at the HQDA, ADCSOPS-FD decision briefing(Block 25).

*b. MS II TEMP COIC approval brief preparations.* DAMO-FDR schedules the ADCSOPS-FD integration director's pre-brief and the ADCSOPS-FD decision briefing. The CBTDEV proponent prepares the ORD-COIC crosswalk "Horse Blanket" and provides it to HQ, TRADOC, if required, for review or possible pre-brief. DAMO-FDR also prepares a decision package for the ADCSOPS-FD, taking into account COIC experience, CG, OPTEC concurrence/non-concurrence of the TRADOC approved COIC, and the ORD-COIC crosswalk "Horse Blanket"package. NOTE: The basic content of the "Horse Blanket"and its physical layout are depicted within a dashed-line box on the flow chart. A detailed description of the "Horse

Blanket", its content and sample questions asked during the briefing are presented in section V of this chapter.

*c. COIC approval pre-brief.* An ORD-COIC crosswalk pre-brief (normally 2 to 3 days before the formal briefing and chaired by the ADCSOPS-FD Integration Director) determines readiness of the briefing for ADCSOPS-FD. Changes directed at this stage will normally be made without delaying the approval briefing.

*d. MS II TEMP COIC brief.* The ADCSOPS-FD reviews and approves the COIC via the ORD-COIC crosswalk briefing conducted NLT 100 days in advance of MS II. Coordinated by DAMO-FDR, briefing participants include the DCSOP System Integrator (SI), the TRASSO, and representatives of the CBTDEV proponent, PM, IOE, TSM, the Deputy Chief of Staff for Intelligence (DCSINT), and others as needed. The TSM or CBTDEV proponent briefs. When required, this briefing also serves as a joint ADCSOPS-FD; CG, OPTEC; and TRADOC, DCSCD joint meeting to address unresolved conflicts; for example, CG, OPTEC nonconcurrence in the TRADOC approved COIC. If minor changes to the COIC are directed, they are handled by the DAMO-FDR A/O (Block 25A). If the changes are significant, a return to Block 16A is probable.

*e. COIC approval for MS II TEMP.* ADCSOPS-FD approves the COIC and forwards them to the TIWG Chairperson/PM NLT 95 days in advance of MS II for inclusion in the TEMP. The COIC may be included directly into part IV, paragraph 4B of the TEMP or as a TEMP Annex.

*f. ACAT ID and BMDO programs COIC timeliness.* Add 20 days to each scheduled NLT date for ACAT ID programs to allow for TEMP approval for DAB processing. If ACAT ID or other OSD T&E oversight programs require TEMP coordination with BMDO, an additional 21 days must be added to each scheduled NLT date.Consequently, an ACAT ID program requiring BMDO coordination on the TEMP would add an additional 41 days to the schedule times provided in the chart.

## 4–10. MS II TEMP approval and COIC updates(Figure 4-7)

*a. TEMP approval processing.* The PM/PEO submits system TEMPs to TEMA for review and DUSA(OR) approval (to DISC4 for Classes II through IV IMA systems not on OSD T&E oversight) NLT 65 days in advance of MS II. TEMA forwards the approved TEMP for those systems on OSD T&E oversight to OSD for review and approval NLT 45 days in advance of MS II. If changes are directed at either the DA or OSD level (Block 27A), the DCSOPS (ATTN: DAMO-FDR) A/O or DISC4 (ATTN:SAIS-AE) A/O, TRASSO, CBTDEV proponent, PM, and operational evaluator resolve the COIC changes and their impacts (Block 27B). The DCSCD, TRADOC and ADCSOPS-FD review and approve revised COIC (Block 27C)for PM inclusion into and resubmission of the revised TEMP (Block 27D to Block 27).

*b. OPTEC IOT&E preparations.* Following receipt of the approved TEMP, OPTEC incorporates COIC into the TEP for IOTE and uses them and performance exit criteria as a basis for development of the AOIAM (See Chap 5)necessary to the evaluation effort.

*c. Post-MS II COIC changes.* Post-MS II (development approval), the CBTDEV proponent continues to actively participate in and maintain full cognizance of the system's developmental progress. In that "firm" MS III COIC were approved and included in the TEMP at MS II, COIC will not be further modified unless directly affected by operational requirement changes. (for example, changes necessitated by new/revised threat intelligence information) or program restructure (for example, performance to be achieved by MS III or as P3I). If revision is necessitated, the CBTDEV proponent reenters the process and completes Blocks 13-28 in support of the full production decision(MS III). Further, in the event an ACAT III system becomes designated an OSD T&E oversight system after MS II, the CBTDEV proponent reenters the process and completes Blocks 15-28.

*d. COIC for system changes.* Only system changes with significant operational impact require COIC (that is, preplanned product improvements to achieve existing approved operational requirements (ORD for material and MNS for IMA systems), and changes responding to revised operational requirements (ORD or MNS)). For such changes, a TEMP with approved COIC is a key element of the system change proposal package. COIC will guide the evaluation and decision to adopt the change. The CBTDEV proponent therefore reenters the process and completes Blocks 13-27 for these changes. DODI 5000.2 requires MS IV to approve initiation of major modifications (that is, system modifications which constitute ACATs I or II programs in their own right). Paras 4-1 through 4-3 above provide additional information on system changes requiring COIC. NOTE: When Changes are required after MS II, process timing is keyed to days in advance of DA approval of the TEMP as per Tables 4-2 and 4-3 above.

## 4–11. Final coordination and approval for COIC

*a. Final COIC coordination memorandum.* Figure 4-8 provides a sample final coordination memorandum for COIC requiring HQDA, ADCSOPS-FD approval. The following observations are made regarding this memorandum:

(1) This coordination is the basis for TRADOC, DCSCD approval and submission of the COIC to HQDA. Only CG, OPTEC or ADCSOPS-FD can cause TRADOC to revisit the COIC once approved by the TRADOC, DCSCD.The HQ, TRADOC staff advises whether the COIC appropriately reflect the operational requirements. The PM advises whether the COIC are compatible with technology and contractual documents. OPTEC advises whether the COIC are testable, measurable, or otherwise evaluatable.DAMO-FDR provides DA action officer coordination and advises regarding latest events in HQDA relative to the system and COIC.

(2) This is the last coordination with the PM before the COIC approval brief to ADCSOPS-FD. CG, OPTEC has the opportunity to confirm concurrence in the COIC by endorsing the TRADOC, DCSCD approved COIC to HQDA for approval. The DA staff have the opportunity to concur with the COIC during decision package coordination.

(3) A two-week suspense for this action is normal. Occasionally shorter or longer timeframes may be available. Two weeks is about the maximum allowance to support approval within 30 days after receipt at HQ, TRADOC as allowed by the ORD, COIC, and TEMP synchronization schedule.

(4) Significant changes will be recoordinated using expedited procedures (most likely electronic mail or fax) with short turnaround required.

(5) Any significant delay during the coordination will likely jeopardize the TEMP submission schedule. This applies to the initial as well as follow-up coordination.

(6) The TRADOC CBTDEV proponent is kept informed of the status of the COIC by the copy furnished distribution.

*b. Memorandum submitting COIC for HQDA, ADCSOPS-FD approval.* Figure 4-9 provides a sample COIC approval submission memorandum. The following observations apply to this memorandum:

(1) The submission is through CG, OPTEC to HQDA (ATTN:DAMO-FDR) in keeping with the guidance that only CG, OPTEC and the ADCSIOS-FD can cause TRADOC to revisit COIC, approved by DCSCD, TRADOC CG, OPTEC endorsement attests to the COIC being testable, measurable, or otherwise evaluatable and provide structure for the operational evaluation. A nonconcurrence or significant comment should be an exceptional circumstance since OEC has been involved throughout the COIC development process and OPTEC provided its position during the TRADOC final position staffing.

(2) The memorandum recognizes whether TRADOC, PM, and OPTEC agreement was reached during the TRADOC approval process. In those cases where agreement is not reached, the difference of position is described.

(3) The copy furnished distribution keeps key players in the COIC approval briefing process informed as to status of the COIC.

In the case of DAMO-FDR and the TRADOC proponent, this distribution provides an advance copy of the COIC to support preparation for the COIC approval brief.

## Section III
## Process for ACAT III and IV Material Programs and Theater/Tactical Class V IMA Systems not on the OSD T&E Oversight List

### 4–12. Forward

Procedures for development, review and approval of COIC for ACAT III/IV material programs and Class V T/T IMA systems not on the OSD T&E oversight list are similar to those for ACAT I/II material programs, Classes II through IV T/T IMA systems, and OSD T&E oversight systems. ACAT III/IV COIC approval differs from ACAT I and II COIC approval primarily because the approval authority is delegated to the CBTDEV. Therefore, the HQDA briefing is not required. This results in a significantly shorter timeline. fig 4-10 through 4-14 depict the COIC process for these systems.Paragraphs below describe the events within these process charts and apply to the specific figure referenced (for example, paras 4-13. a and b are to be used with Fig 4-10). MNS/ORD/FD, COIC, and TEMP synchronization dates discussed in Table 4-5 are shown in these charts. Dotted/dashed boxes and lines are information events. When appropriate, "Notes" are added to highlight actions called for in the paragraph or to provide some additional insight into the action required. The charts use TRADOC as the example CBTDEV proponent.

### 4–13. CBTDEV proponent drafts COIC for MS I TEMP(Figure 4-10)

*a. CBTDEV front-end analysis.* The process begins with the CBTDEV proponent conducting the COIC front-end analysis. This analysis uses as its base the MNS approved at milestone 0 and draws from the ORD formulation process.Additional considerations include when available: baseline intelligence products (or the STAR), system critical mission(s) and function(s), system employment and sustainment concepts, similar system(s) acquisition experiences, studies/analyses used to justify the system requirement, the COEA, and recent COIC approval process experiences (approved examples, questions, rejections and guidance).NOTE: The object of front-end analysis is to "get smart" on the system so as to provide properly focused COIC with appropriate bottom line critical mission accomplishment and sustainment standards.

*b. Draft COIC for MS I TEMP.* With submission of the draft ORD to HQ, TRADOC for approval, and in coordination with the MATDEV and IOE, the CBTDEV proponent prepares draft COIC focused on the MS III (full production)decision. The critical issues being based on the MNS are unlikely to change as the system proceeds through the acquisition phases.Criteria being based on the ORD/FD and reflecting MS III expectations, on the other hand, may initially be "soft" (that is, lack specificity). Detailed preparation guidelines are found in Chapter 5.

### 4–14. COIC coordination and approval for MS I TEMP (Figure 4-11)

*a. CBTDEV proponent COIC coordination.* Following TRADOC approval of the ORD NLT 120 days prior to MS I, the CBTDEV proponent makes appropriate adjustments to the draft COIC and coordinates them with the MATDEV (SYSDEV for IMA systems), OPTEC, and HQ, TRADOC. Coordination with the MATDEV/SYSDEV will ensure synchronization with technical requirement definitions including software requirements. ILS requirements, and other system specifications to be documented in a RFP. Coordination with the operational evaluator will ensure that COIC are testable, measurable, or otherwise evaluating and provide an appropriate structure for the operational evaluation. Additionally (Block 3A), in that COIC focus on the MS III full production decision, the CBTDEV proponent interfaces with the MATDEV and the operational evaluator to formulate system performance exit criteria for the MS II(development) decision review, when appropriate. A discussion of the relationship of exit criteria to COIC can be found in Chapter 5.

*b. CBTDEV proponent submits COIC for approval.* The CBTDEV proponent forwards the coordinated, final draft COIC to the TRADOC center/school (proponent) Commander (CDR), Commandant (CMDT), or Assistant Commandant (AC) (as appropriate) for review and approval.

*c. COIC approval for MS I TEMP.* The CBTDEV proponent CDR/CMDT/AC approves the COIC at least 75 days prior to MS I and distributes them. Minimum distribution includes HQ, TRAFOC (Block 5A), the operational evaluator(OPTEC-Block 5B) for inclusion in the TEP and the MATDEV/SYSDEV(Block 5C) for incorporation into the TEMP, part IV, paragraph 4B or as a TEMP Annex.

### 4–15. MS I and Post-MS I COIC activities (Figure 4-12)

*a. HQ, TRADOC COIC review.* HQ, TRADOC applies "management by exception" to ACATs III and IV as well as T/T IMA systems COIC. If changes are directed(Block 6A), the CBTDEV proponent resolves the changes and their impacts (Block 6B), recoordinates them (Block 3), and resubmits them for approval (Blocks 4 and 5). An approved TEMP is also required for MS I for these systems.

*b. OPTEC evaluation planning for MS II.* OPTEC incorporates the approved COIC into the TEP for the EOA, or abbreviated operational assessment (AOA) and uses them as a basis for finalizing AOIAM (See Chap 5) to guide the MS II evaluation.

*c. CBTDEV identifies required COIC changes.* The operational requirement matures as a system progresses through its acquisition phases. As a result, revisions to COIC may be necessary to ensure that they continue to adequately and accurately represent features/capabilities critical to mission performance and provide proper focus for the full production decision. After approval of the updated ORD and COEA for MS II, the CBTDEV proponent normally needs to refine criteria to reflect a greater level of specificity (firmness) than that found in the"soft" criteria of the initial set, (that is, the criteria must provide an operationally meaningful and critical threshold of mission performance for which a shortfall would be an operational-"show stopper".) The CBTDEV proponent identifies the necessity for change/update by actively participating in and maintaining full cognizance of the system’s developmental progress. First among many potential sources of change is the ADM or "minutes" of t he In-Process Review (IPR), which documents decisions and directives, and approves the system concept baseline (MS I) and exit criteria for the next MS. Additional sources include, but are not limited to, results from EUTE/EOA/AOA (Block 8), emerging results from the COEA, the ORD refinement/revision process, (to culminate in HQ, TRADOC approval 120 days in advance of MS II), and development of the RAM Rationale Report and material specifications for the RFP.

### 4–16. COIC update and approval for MS II TEMP(Figure 4-13)

*a. CBTDEV updates COIC for MS II TEMP.* The CBTDEV proponent, in conjunction with the MATDEV/SYSDEV and operational evaluator (OEC), updates COIC as necessary to include the addition of "firm" MS II criteria. Concurrently (Block 10A), the CBTDEV works with the operational evaluator and MATDEV in the formulation of LRIP and/or MS III performance oriented exit criteria if applicable. NOTE: When needed, performance oriented exit criteria for MS II were formulated Pre-MS I, approved during MDR I, and documented in the ADM. In the event of a consolidated MS I/II, only one set of approved documents, (including COIC and TEMP) will be produced even though the drafting process may go through several iterations.

*b. MS II TEMP COIC coordination.* The CBTDEV proponent coordinates the final draft COIC with the MATDEV/SYSDEV, OPTEC, and HQ TRADOC (TRASSO) NLT 115 days in advance of MS II and submits them to the proponent for review and approval.

Concurrently, the MATDEV/SYSDEV includes the final draft COIC in the TEMP for TIWG staffing.

*c. COIC approval for MS II TEMP.* The CBTDEV proponent CDR/CMDT/AC approves for TRADOC the COIC for ACATs III and IV material systems as well as Class V, T/T IMA systems not on OSD T&E oversight. Approval and distribution must occur at least 75 days in advance of MS II for on-schedule approval of the MS II TEMP. The CBTDEV distributes the approved COIC to appropriate acquisition team members. The following are mandatory recipients of the COIC: HQ, TRADOC (Block 13A) for information and action deemed appropriate, the operational evaluator (OPTEC-Block 13B) for incorporation into the TEP, and the MATDEV/SYSDEV (Block 13C) for incorporation into the TEMP, part IV, paragraph 4B or as a TEMP Annex.

### 4–17. MS II and Post-MS II COIC operations(Figure 4-14)

*a. HQ, TRADOC review.* HQ, TRADOC applies "management by exception" to ACATs III and IV material systems as well as Class V, T/T IMA systems COIC. If changes are directed (Block 14A), the CBTDEV resolves the COIC changes and their impacts (Block 14B), recoordinates them as in Block 11 and resubmits them for approval as in Blocks 12 and 13(Block 14c).

*b. OPTEC evaluation planning for MS III.* OPTEC incorporates approved COIC into the TEP for IOTE and uses them as a basis for finalizing the AOIAM (See Chap 5) to guide the MS II evaluation.

*c. CBTDEV identifies required COIC updates.*

(1) The CBTDEV proponent continues to actively participate in and maintain full cognizance of the system's developmental progress.In that "firm" MS III COIC were approved and included in the TEMP at MS II, COIC will not be further modified unless directly affected by developmental system changes, (for example, P3I or modifications/upgrades to the system responding to a revised ORD/MNS). If revision is necessary, the CBTDEV proponent reenters the process and completes Blocks 11-13 in support of the full production decision. For modifications, the full production decision may be an MS III, a decision to adopt and apply an engineering change proposal(ECP), or the decision to procure modification work order (MWO) sets.

(2) For developmental system changes after initiation of production/fielding, a TEMP is included in the system change proposal approval packages which, when approved, will guide the evaluation and decision to adopt the system change. COIC will be an integral element of the TEMP. The CBTDEV therefore reenters the process and completes Block 9-13 in support of the modification approval. Paragraph 4-1, this chapter, identifies system changes that require COIC.

## Section IV
## COIC Process for Strategic and Sustaining Base Information Mission Area Systems

### 4–18. Forward

The development, review and approval process for COIC applicable to S/SB IMA systems is essentially the same as that for other systems. Differences are predominantly the organizations involved and timing in relation to the MDR. fig 4-15 and 4-16 depict the COIC process for these systems. Paragraphs below describe events within each chart and apply to the specific figure referenced(for example, paras 4-19. a through g is to be used with fig 4-15).

### 4–19. Classes II through IV strategic and sustaining base IMA systems COIC development, coordination and approval (Figure 4-15)

*a. Functional proponent develops COIC.* The process begins at least 170 days prior to MDR I with the FP developing COIC based on the MNS and FD, and staffing them internally and with OPTEC and the SYSDEV/PM.

*b. FP forwards COIC to HQDA (DISC4).* The COIC are submitted to DISC4 (ATTN: SAIS-AE) at least 140 days prior to MDR I for review and staffing. This phase also includes a MNS/FD-COIC relationship briefing to the Chief, Analysis and Evaluation Office. DISC4 at least 100 days prior to MS I. Section V of this chapter provides format guidance for the briefing package.

*c. COIC approval briefing to VDISC4.* A decision briefing for COIC approval by the VDISC4 is presented at least 93 days prior to MDR I.

*d. COIC approval and distribution.* VDISC4 approves and SAIS-AE forwards the approved COIC to the PM/TIWG chairperson for inclusion in the TEMP at least 79 days prior to MS I.

*e. PM submits TEMP for HQDA approval.* Following OPTEC and FP review of the TEMP, the PM forwards it to TEMA or DISC4 for approval at least 65 days prior to MDR I.TEMPS which require OSD approval are submitted to TEMA for DUSA (OR)approval and submission to OSD. TEMPs which require approval by the HQDA Major Automated Information System Review Council (MAISRC)decision authority are submitted to DISC4 (SAIS-AE) for DISC4 approval (See DA Pam 73-2 (forthcoming).)

*f. TEMP approval.* The TEMP is approved by the DUSA (OR) or DISC4 at least 45 days prior to MDR I.

*g. Classes II through IV S/SB IMA systems COIC update or revision.* As for other systems, COIC for S/SB IMA systems are subject to revision when a significant change occurs in the basis for criteria. (for example, major update of FD operational requirements impacting COIC before MS II), preplanned fielding of functional blocks for system, the MNS is changed in operational requirements, or program redirection by the MDR decision authority. When change is necessary, the process flow and timing for subsequent MDRs or other events (for example, modification) parallel that described for MDR I.

### 4–20. Class V strategic and sustaining base IMA system COIC development, coordination and approval (Figure 4-16)

*a. Functional proponent develops COIC.* The process begins at least 105 days prior to MDR I with the FP developing COIC based on the MNS and FD, and staffing them internally and with OPTEC and the SYSDEV/PM.

*b. FP approves and forwards the COIC to SYDEV/TIWG.* Based on coordination with OPTEC and SYSDEV, the FP approves the COIC at least 75 days prior to MS I and forwards them to the SYSDEV/TIWG for inclusion in the TEMP at least 60 days prior to MS I.

*c. SYSDEV performs final TEMP coordination and obtains TEMP approval.* SYSDEV includes approved COIC in TEMP and staffs it with the TIWG. Given no unresolved differences, the SYSDEV decision authority approves the TEMP. Unresolved issues are raised to appropriate level for resolution. TEMP approval is to occur at least 45 days prior to MS I (See DA Pam 73-2 (forthcoming)).

*d. Class V S/SB IMA systems COIC update or revision.* As for other systems, the COIC for S/SB IMA systems are subject to revision when a significant change occurs in the basis for criteria, (for example, major update of FD operational requirements impacting COIC before MS II), preplanned fielding of functional blocks for the system, the MNS is changed in operational requirements or program redirection by the MDR decision authority.When change is necessary, the process flow and timing for subsequent MDRs or other events (for example, modification) parallel that described above for MS I.

## Section V
## HQDA COIC Approval Briefings for Material and IMA Systems

### 4–21. Overview

HQDA approval of material and IMA systems COIC is based on a briefing which crosswalks COIC with the operational requirements.ADCSOPS-FD approval of COIC for material and T/T IMA systems, and VDISC4 approval of COIC for S/SB IMA systems are similar in format of the charts used, requirements for prebriefs, participants in briefings, and a flavor of the briefings.

## 4–22. HQDA COIC Approval Briefing "Horse Blanket"

*a. Format.* Both ADCSOPS-FD and VDISC4 use a "Horse Blanket" approach, which are similar in format and content. Depending on the preference of the ADCSOPS-FD, a single sheet or multiple sheets with about 30 inch wide paper is used for their briefing. The DAMO-FDR COIC action officer can advise on paper size and other peculiarities. The VDISC4 normally accepts a multiple sheet approach and the SAIS-AE COIC action officer can advise regarding administrative specifics and peculiarities. The "Horse Blanket" serves to graphically depict pertinent system information and the direct link between the perational requirement and COIC criterion. In that regard, the"Horse Blanket" consists of basically two parts. First, a system background information status section, and second, an operational requirement to COIC crosswalk.

*b. ORD-COIC crosswalk "Horse Blanket" for ADCSOPS-FD approval of material systems COIC (See fig 4-17 and 4-18).* This "Horse Blanket" supports the ADCSOPS-FD decision(approval) briefing for ACATs 1 and II systems, as well as, OSD T&E oversight and DA selected ACATs III and IV systems COIC for the MS II TEMP and subsequent major revisions of these COIC. Less than major revisions will normally be approved through a DCSOPS paper staffing and occasionally with a desk side briefing with few key participants. The "Horse Blanket" (one or more sheets) is prepared by the CBTDEV in the format depicted in fig 4-17 and 4-18.

(1) The program background information is the first section(Fig 4-17) and contains as a minimum the following information:

*(a) A concise system description.* Annotated line drawings or schematics may be used as appropriate to facilitate this description.

*(b) Operational mode.* The operational mode summary/mission profile (OMS/MP).

*(c) Threat description.* A brief, unclassified description of key threat(s) to the system that will exist at the time of fielding.

*(d) Operational scenario.* A synopsis of the operational scenario, that is, how the system will be employed on the battlefield.

(2) The ORD-COIC crosswalk is the second section (Fig 4-18)and contains at a minimum the following:

*(a) The ORD-COIC crosswalk.* All COIC (issue, scope, criteria, rationale, and notes) will be presented in their entirety. Applicable ORD requirement and rationale paragraphs will be referenced, stated, and linked by colorcoded lines to the appropriate criterion. COIC will maintain their integrity as submitted for approval. ORD requirements will be cut, duplicated, and located as appropriate and necessary to support presentation of the COIC (that is, the ORD requirements section will not maintain its integrity. The ORD requirements column normally does not include all ORD operational requirements; it includes only those supporting COIC criteria.

*(b) Programmatic.* Program status to include funding and schedule.

*c. MNS/FD-COIC crosswalk "Horse Blanket" for ADCSOPS-FD approval of T/t IMA system COIC (See fig 4-19 and 4-20).* This "Horse Blanket" supports the HQDA (ADCSOPS-FD)decision (approval) briefing for Classes II through IV T/T IMA systems COIC for the MS II TEMP and subsequent major revisions to these COIC. Less than major revisions will normally be approved through a DCSOPS paper staffing and occasionally with a desk side briefing with few key participants. The "Horse Blanket" will be prepared by the CBTDEV in the format depicted in fig 4-19 and 4-20.

(1) The background information section (Fig 4-19) contains the same information types as that provided the ADCSOPS-FD for material systems (See Para 4-22. b above) except the OMS/MP contains additional information. The OMS/MP describes current system deficiencies and battlefield automation architecture improvements in addition to future system usage.

(2) The MNS/FD-COIC crosswalk section (Fig 4-20) contains the same information types as that provided in the crosswalk section provided the ADCSOPS-FD for material systems except the operational requirements and rationale are those from the MNS and FD. ORDs do not apply to Classes II through IV IMA systems.

*d. MNS/FD-COIC crosswalk "Horse Blanket" for VDISC4 approval of S/SB IMA systems (See fig 4-21 and 4-22).* This "Horse Blanket" supports the VDISC4 decision (approval) briefing for Classes II through IV S/SB IMA systems COIC for the MS I TEMP and subsequent major revisions to these COIC. Less than major revisions will normally get approved through a DSIC4 paper staffing and occasionally a desk side briefing with few key participants. The"Horse Blanket" will be prepared by the functional proponent in the format depicted in fig 4-21 and 4-22.

(1) The background information section (Fig 4-21) contains the same information types as that provided the ADCSOPS-FD for material systems and T/T IMA systems (Paragraph 4-22b and c above)with two exceptions. The first exception is that an operational scenario does not apply. The second exception is that the programmatic information (funding and schedule) moves up from the COIC crosswalk section.

(2) The MNS/FD-COIC crosswalk section (Fig 4-22) contains the same information types as the ADCSOPS-FD "Horse Blanket" for T/T IMA systems except that the programmatic information moves up to the background information section (See Paragraph 4-22d1).

## 4–23. COIC approval pre-brief

The pre-brief determines readiness for delivery of the decision briefing to the ADCSOPS-FD or VDISC4 as applicable for a given system. For material and T/T IMA systems, the DAMO-FDR COIC action officer with the DCSOPS SI orchestrates the review and brief.The COIC pre-brief normally occurs two to three days in advance of the ADCSOPS-FD brief at the ADCSOPS-FD Integration Directorate(General Officer) level. Attendees include representatives from the PM, DAMO-FDR, OEC, HQ TRADOC, DCSOPS SI and the TRADOC proponent center/school and/or TSM office. For S/SB IMA systems, SAIS-AE orchestrates the pre-brief. The pre-brief normally occurs during the week before the official VDISC4 brief.

## 4–24. COIC approval brief

*a.* The ADSCOPS-FD decision briefing for approval of the COIC occurs NLT 100 days in advance of MS II. The principal briefer is a representative of the TRADOC proponent school, Director of Combat Developments (DCD) or the TSM. Required attendees (in addition to the briefer and DAMO-FDR representative) include the DCSOPS SI, the HQ TRADOC System Staff Officer, the TRADOC proponent school DCD or the TSM, the PM, a representative from OEC, and a representative from DCSINT. Others (subject to space availability) may attend as needed to answer specific questions.

*b.* The VDISC4 decision briefing for approval of COIC occurs NLT 93 days in advance of MS I. The principal briefer is a representative of the FP. Required attendees (in addition to the briefer and SAIS-AE representative) include the DISC4 analyst, the PM, a representative from OEC, and a representative from DCSINT.Others (subject to space availability) may attend as needed to answer specific questions.

*c.* Anything on the "Horse Blanket" is subject to challenge but particularly the OMS/MP, ORD/MNS/FD requirements, ORD/MNS/FD requirement rationale, COEA linkage, and the COIC. Examples of questions/areas of concern which may surface during the decision briefing include:

(1) Would you withhold program go-ahead if this criterion were not achieved? NOTE: If the criterion was properly selected and structured as a "show stopper", the answer should be "Yes". A "No"response will cause the ADCSOPS-FD/VDISC4 to direct a rework of the COIC.

(2) What is the critical mission to be performed? NOTE: This question is avoidable in that the system COIC should include one or more mission performance COI.

(3) How will the system be supported? NOTE: Because there is no mandatory requirement for a sustainment issue, the subject of this question may not be addressed by the system COIC. Attendees must be prepared to answer this type of question as an element of the system operational scenario, whether there is or is not a separate sustainment issue.

(4) What is the basis for the ORD/MNS/FD requirement? NOTE:This question should be avoidable if the "Horse Blanket" is

properly structured to include the requirement rationale from the ORD.

(5) When was the OMS/MP, last updated and on what basis? NOTE:the OMS/MP as an element of the RAM Rationale Report supporting the ORD, should have been updated by the CBTDEV following MS I, approved by HQ, TRADOC NLT 230 days prior to MS II, and approved by HQDA/NLT 170 days prior to MS II. Most IMA systems OMS/MP have been updated during COIC preparation.

(6) How will these criteria be evaluated/tested? NOTE: This question is partially answerable from the "Horse Blanket" if the COIC (including scope) are included in their entirety as required.The operational evaluator must be prepared to provide a detailed answer.

(7) What does this term mean operationally/functionally? NOTE:Attendees must be familiar with the definition and operational impact of all terms used in the COIC. If not, they can jeopardize the successful outcome of the briefing.

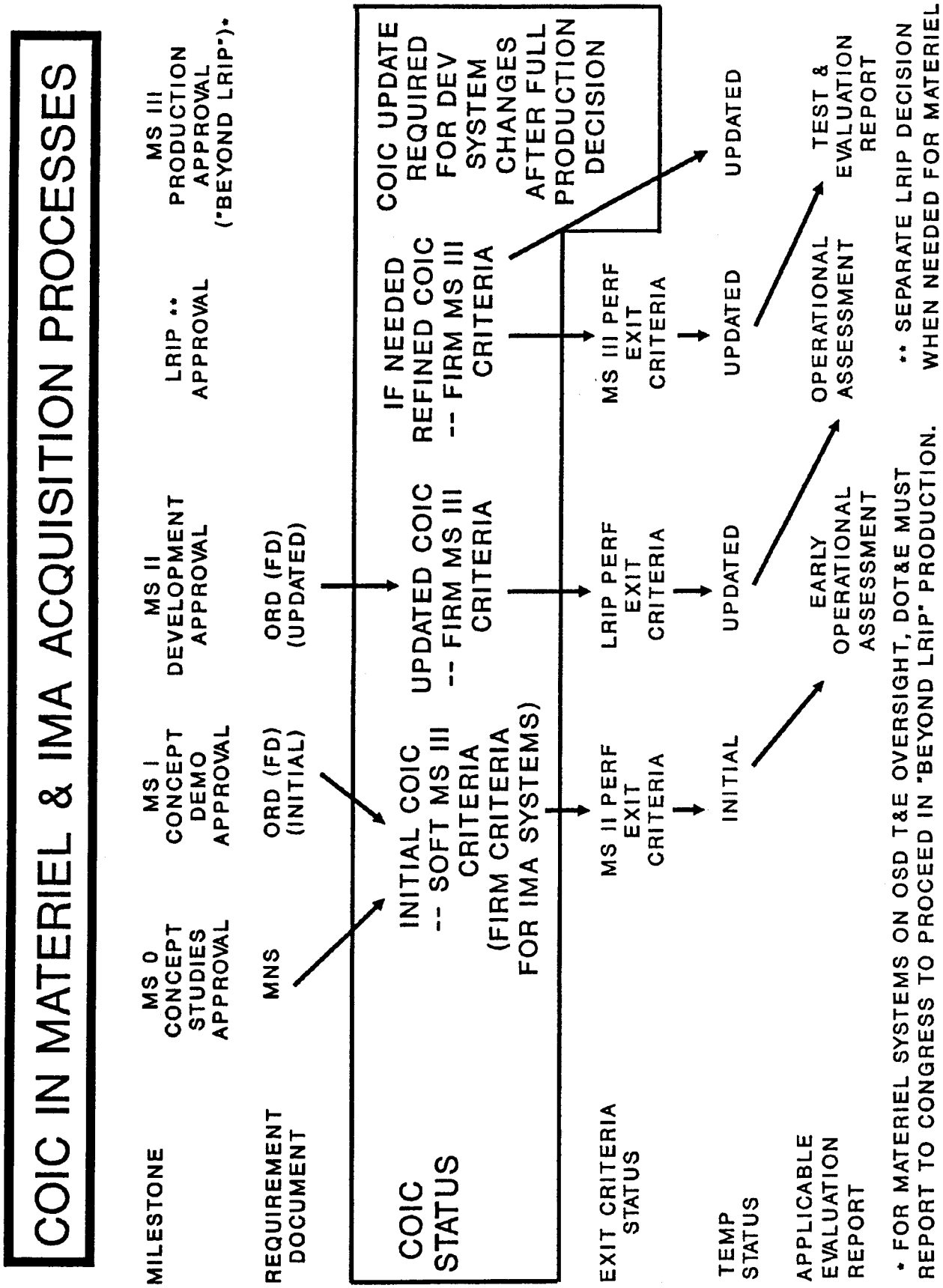


**Figure 4-1. CIOC and the Acquisition Processes**

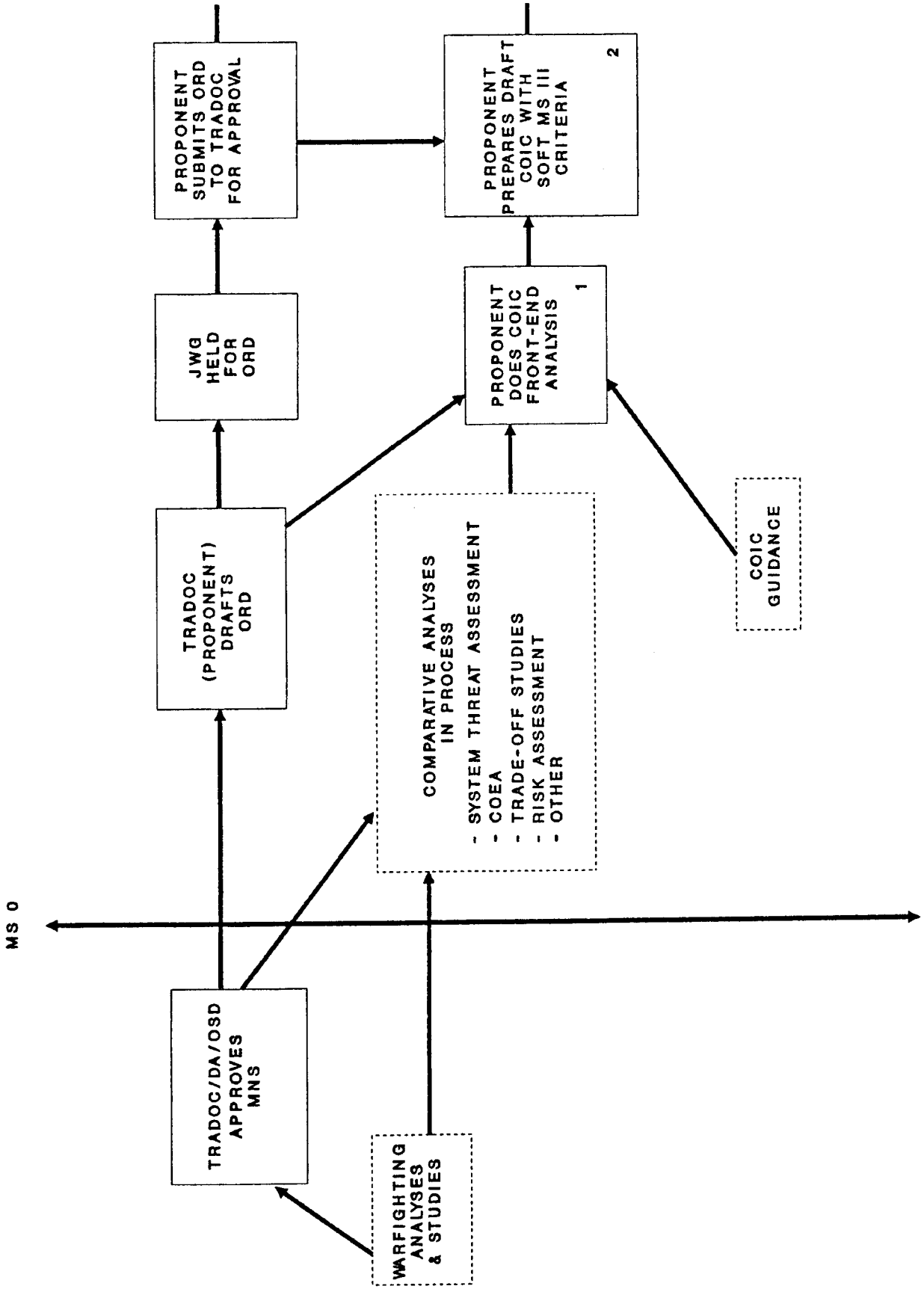


**Figure 4-2. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV—Steps 1 & 2**

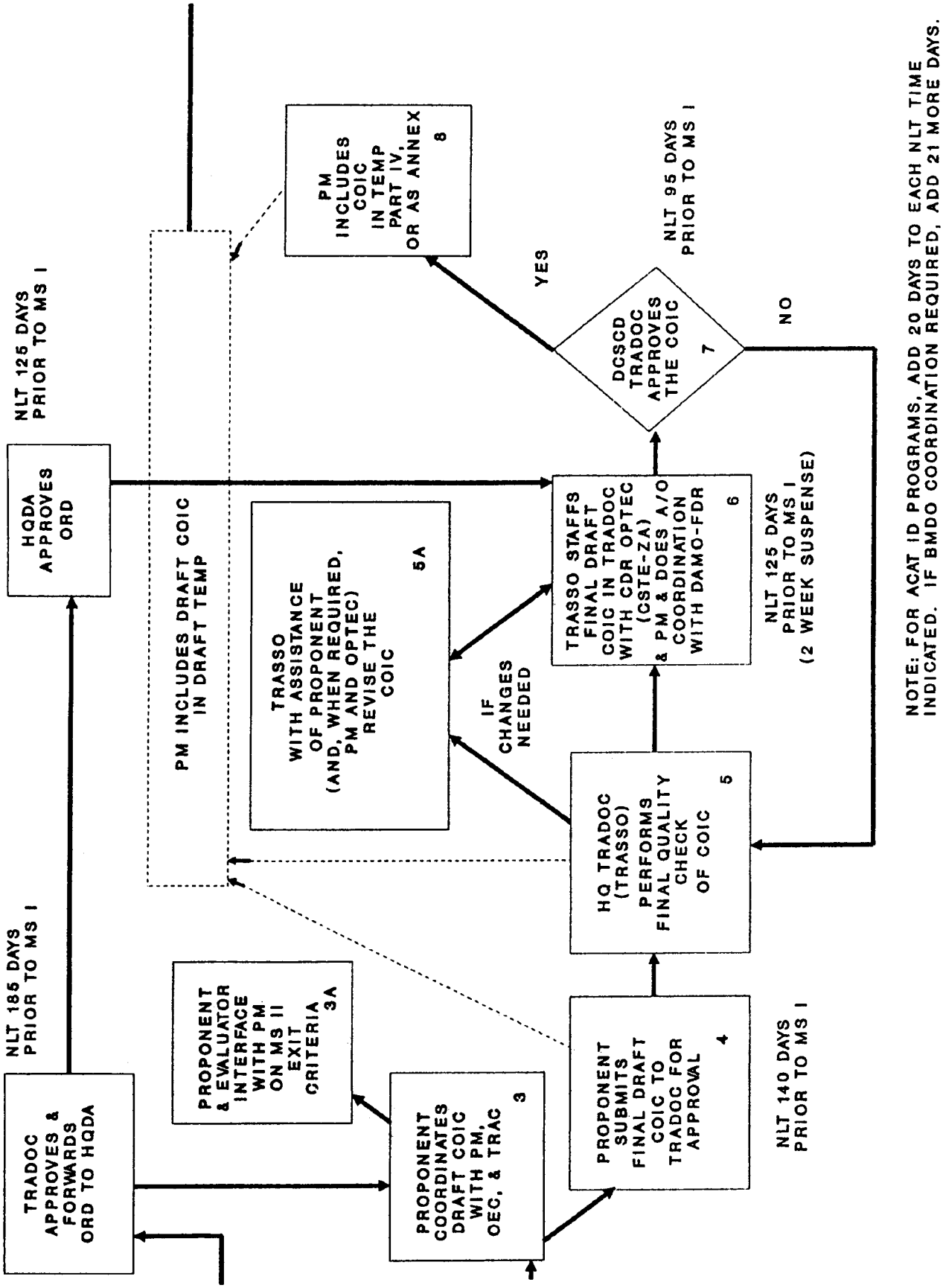


**Figure 4-3. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV IMA—Steps 3 through 8**

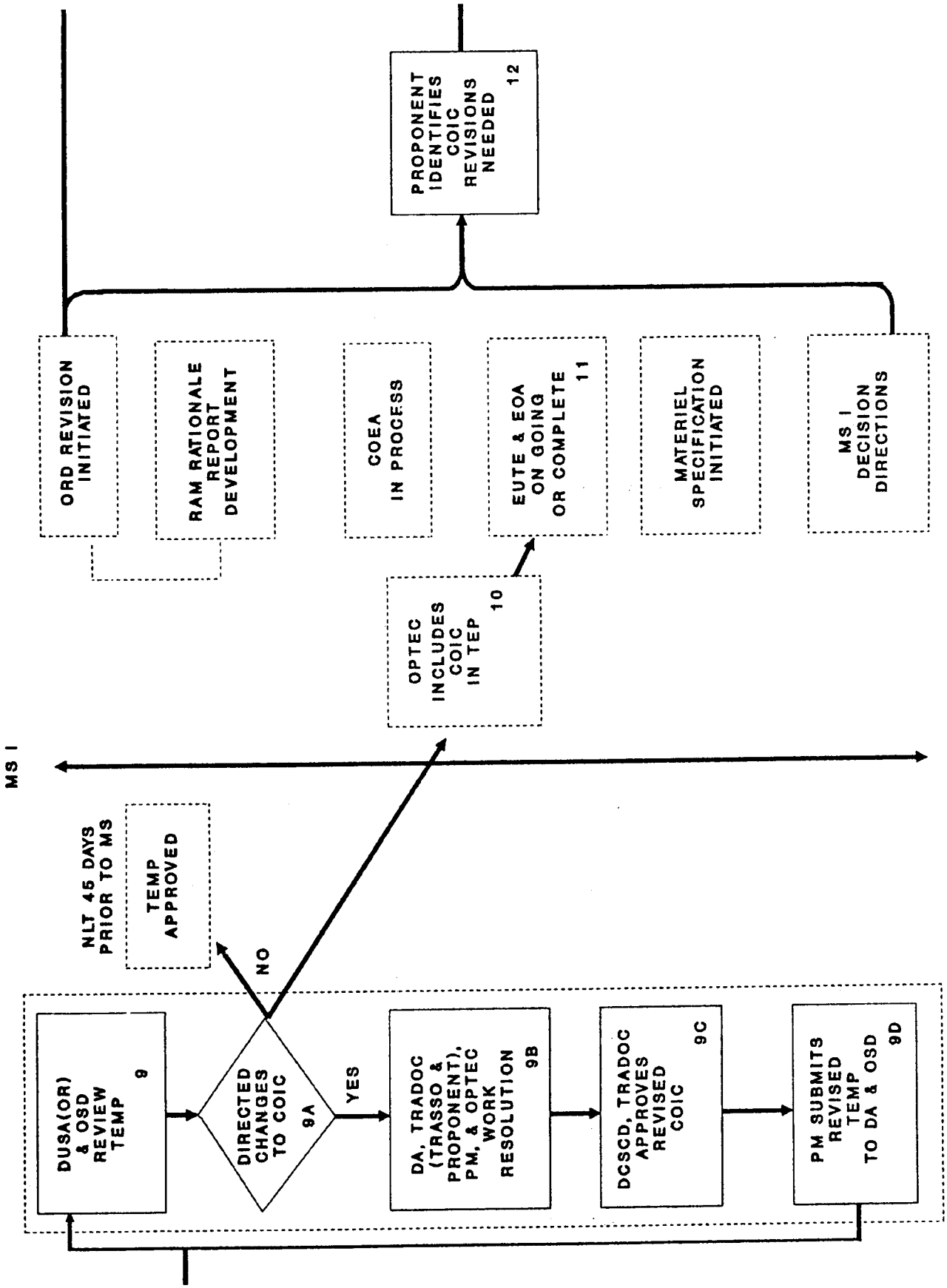


**Figure 4-4. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV IMA—Steps 9 through 12**

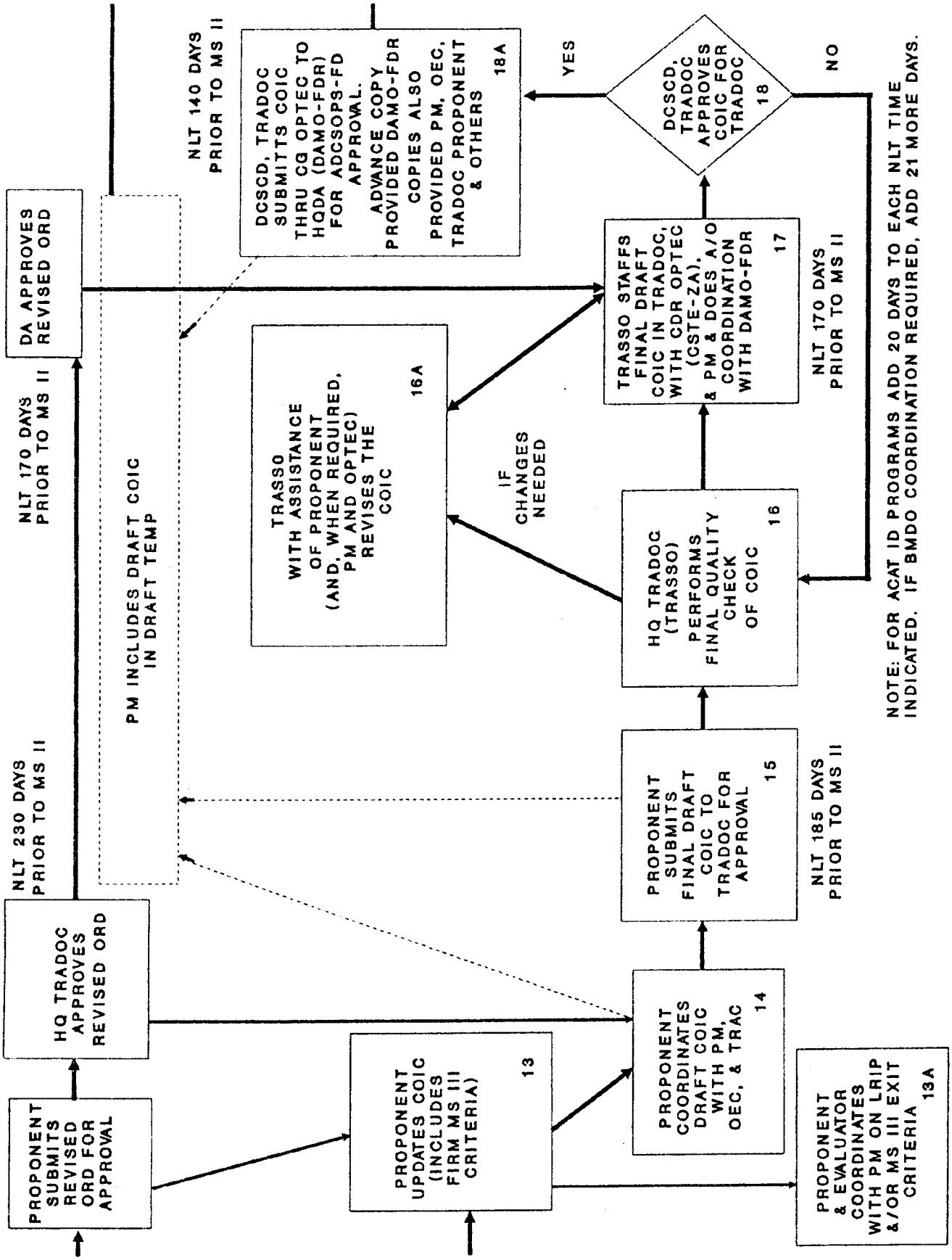


**Figure 4-5. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV IMA—Steps 13 through 18**

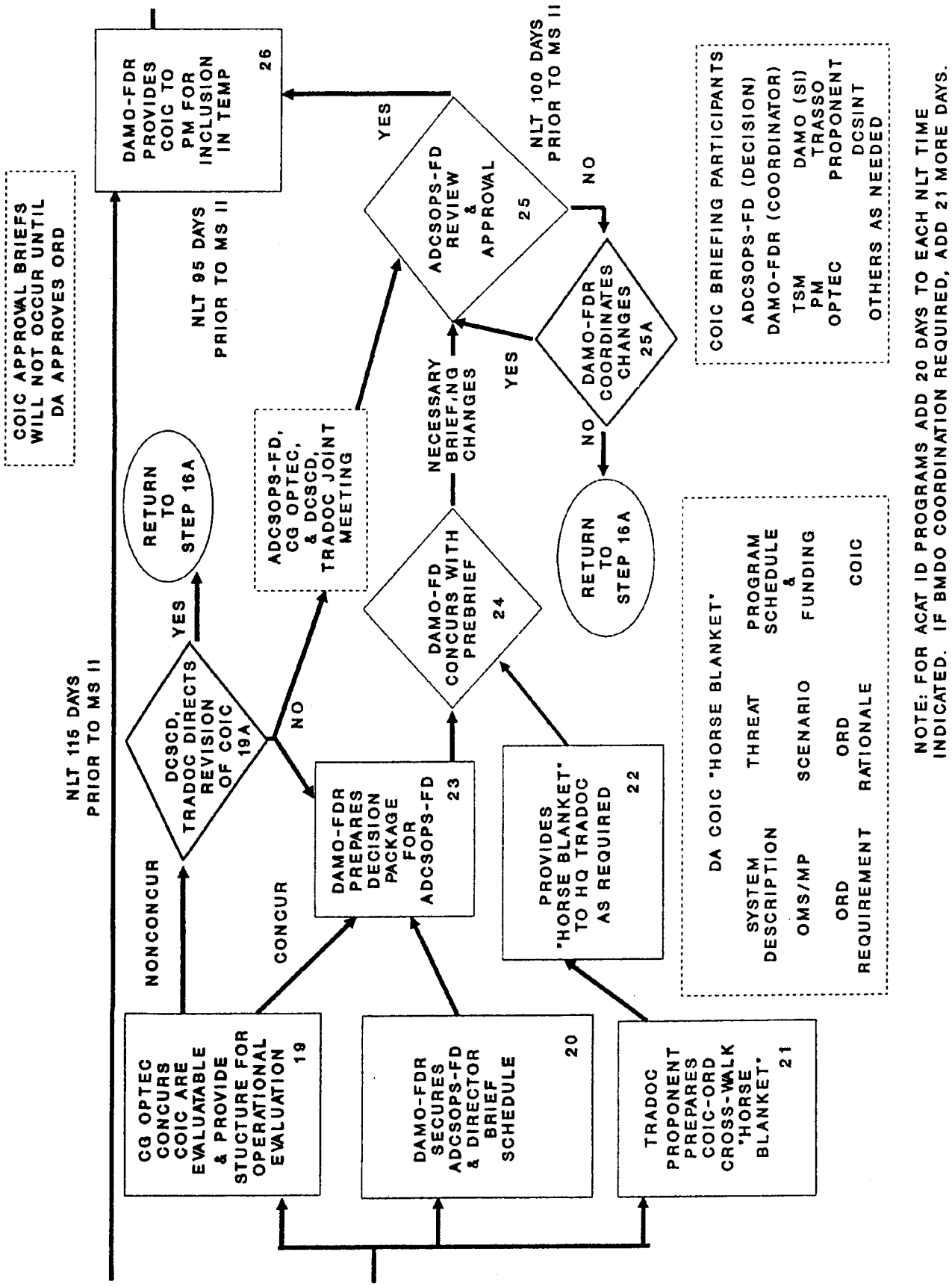


**Figure 4-6. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV IMA—Steps 19 through 26**

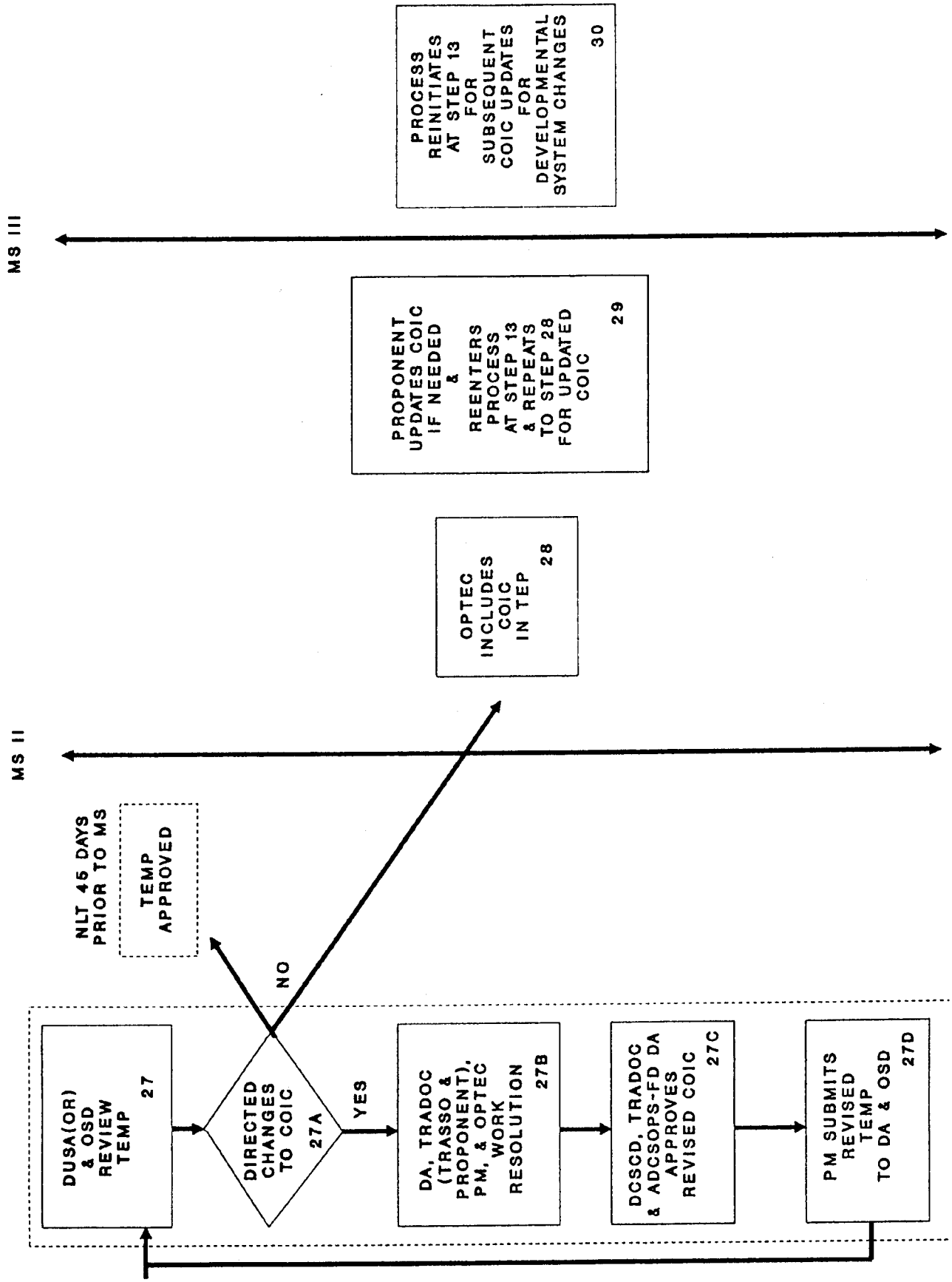


**Figure 4-7. Process for ACATs I/II Materiel, Theater/Tactical Classes II-IV IMA—Steps 27 through 30**

U.S. Army Training and Doctrine Command

ATCD-XX (73-1) S: (date)

MEMORANDUM FOR CDR OPTEC, ATTN: CSTE-ZA (EVALUATOR'S NAME)
Program Manager/Materiel Developer
HQDA, ATTN: DAMO-FDR
HQ TRADOC Staff Elements

SUBJECT: Critical Operational Issues and Criteria (COIC) for "X" System

1. References:

a. AR 73-1, 27 Feb 95, subject: Test and Evaluation Policy.

b. DA PAM 73-1, (date), subject: Critical Operational Issues and Criteria (COIC) Procedures and Guidelines.

2. This memorandum forwards final draft COIC for subject system for your concurrence in accordance with references 1a and b. This constitutes TRADOC position staffing to recommend that DCSCD approve and forward these COIC to DA for ADCSOPS-FD approval. Request your position be provided this headquarters (ATTN: ATCD-XX) not later than (two weeks). This will support TEMP approval by (date) as currently scheduled.

3. Significant changes will be staffed with you before DCSCD approves the COIC for TRADOC. An expedited staffing technique will be used to maintain current approval schedule.

4. TRADOC POC is (name, office symbol, phone, etc).

FOR THE DEPUTY CHIEF OF STAFF FOR COMBAT DEVELOPMENTS:

1 Encl
as

(Director DCSCD Staff Office signature block)

CF:
TRADOC COMMAND/CENTER/SCHOOL, ATTN: DCD AND TSM

**Figure 4-8. Sample Combat Developer Final COIC Staffing Memorandum—Before Forwarding to DA for Approval**

U.S. Army Training and Doctrine Command
ATCD-ZZZ (73-1)

MEMORANDUM THRU COMMANDER, U.S. ARMY OPERATIONAL TEST AND EVALUATION COMMAND, ATTN: CSTE-ZA, PARK CENTER IV 4501 FORD AVENUE, ALEXANDRIA, VA 22302-1458

FOR HQDA, ATTN: DAMO-FDR, WASHINGTON, D.C. 20310-0400

SUBJECT: Critical Operational Issues and Criteria (COIC) for "X" System

1. References:

a. AR 73-1, 27 Feb 95, Test and Evaluation Policy.

b. DA PAM 73-3, __(date)__, Critical Operational Issues and Criteria (COIC) Procedures and Guidelines.

2. This memorandum forwards TRADOC approved COIC for subject system (Encl 1) for ADCSOPS-FD approval per references 1a and b. These COIC were previously staffed with and concurred in by PM and OPTEC. .... (If there is an unresolved difference of position, it should be described here.) ....

3. TRADOC POC is __(name, office symbol, phone, etc)__.

FOR THE COMMANDER:

1 Encl
as

XXXXXXXXXXXXXXXXXXXXXXXX
Major General, GS
Deputy Chief of Staff for
Combat Developments

CF:
HQDA, ATTN: DAMO-FDR (ADVANCE COPY)
OPERATIONAL EVALUATION COMMAND, ATTN: Evaluator Office
PM
TRADOC CENTER/SCHOOL, ATTN: DCD AND TSM

**Figure 4-9. Sample Combat Developer Memorandum Forwarding COIC to DA for Approval**

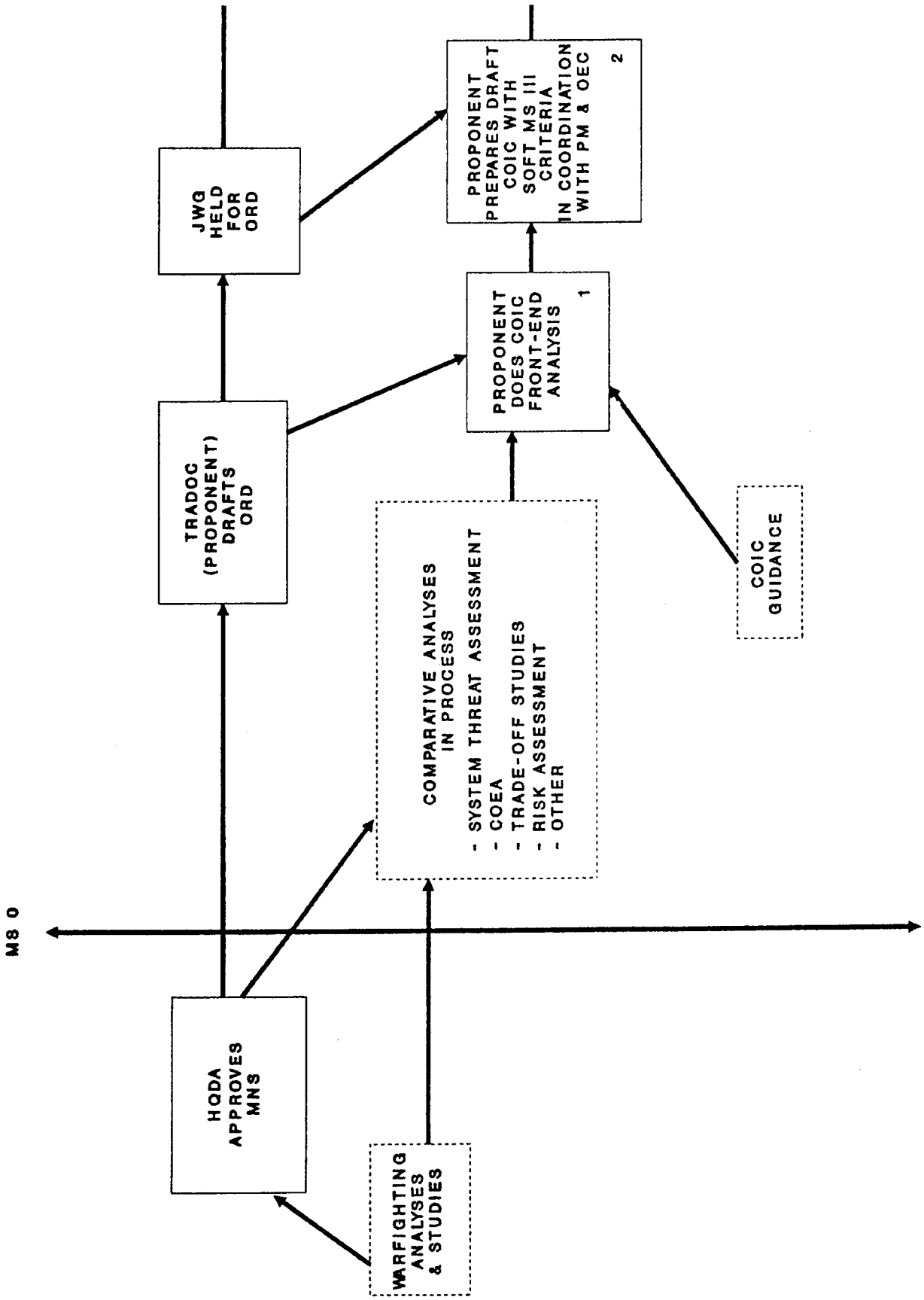


**Figure 4-10. Process for ACATs III/IV Materiel and Theater/Tactical Class V Systems not on the OSD T&E Oversight Light**

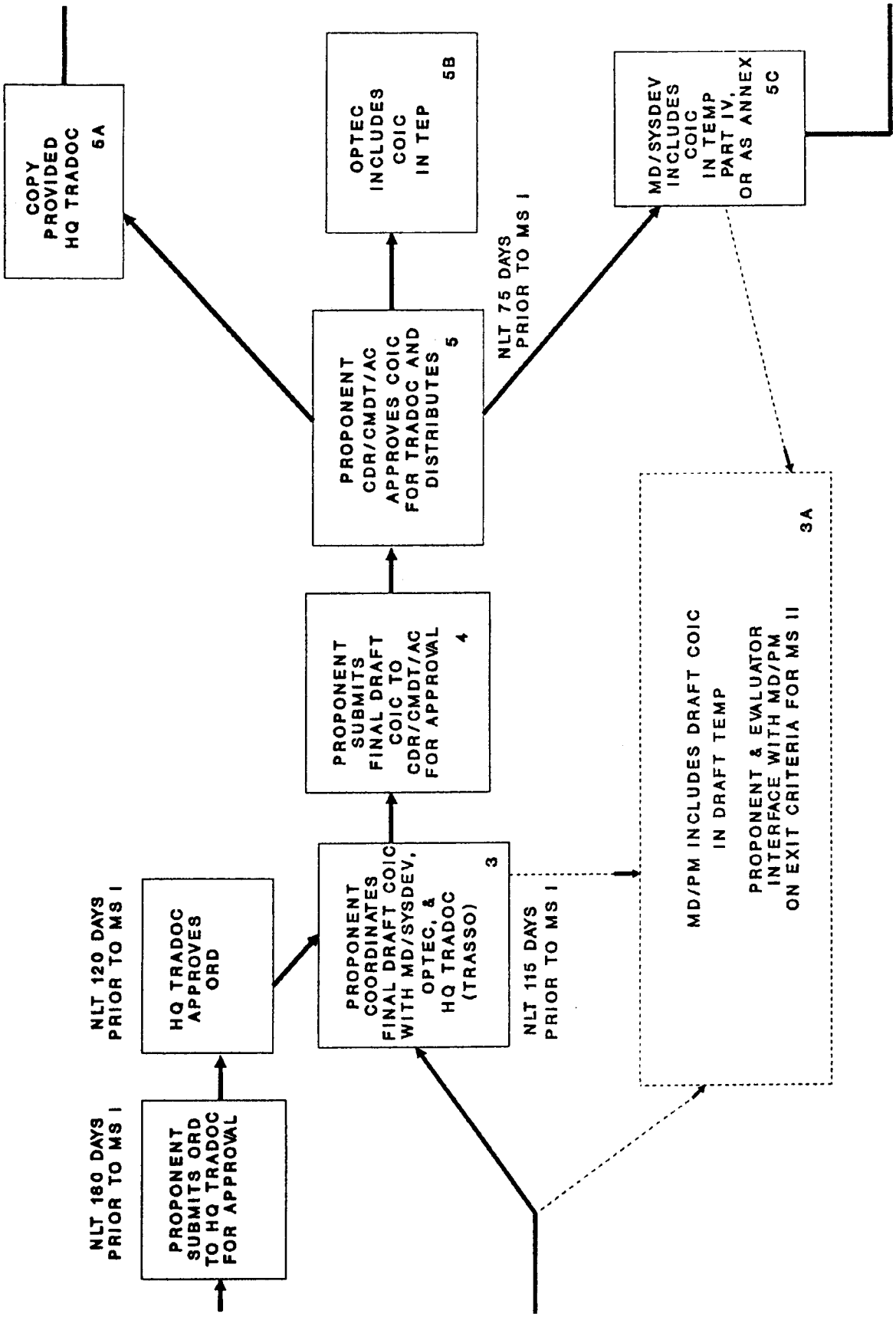


**Figure 4-11. Process for ACATs III/IV Materiel and Theater/Tactical Class V Systems not on the OSD T&E Oversight Light**

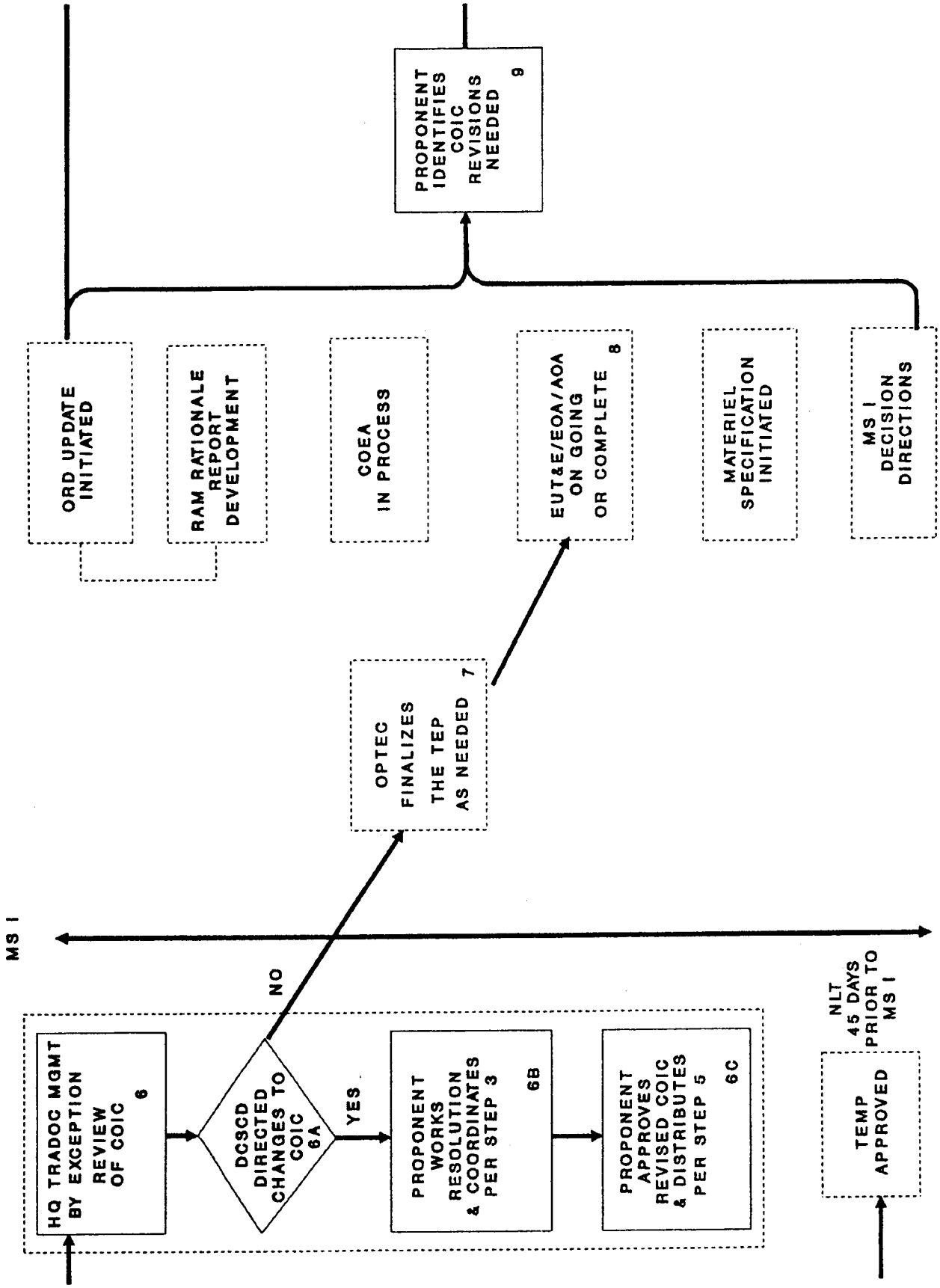


**Figure 4-12. Process for ACATs III/IV Materiel and Theater/Tactical ClassV Systems not on the OSD T&E Oversight Light**

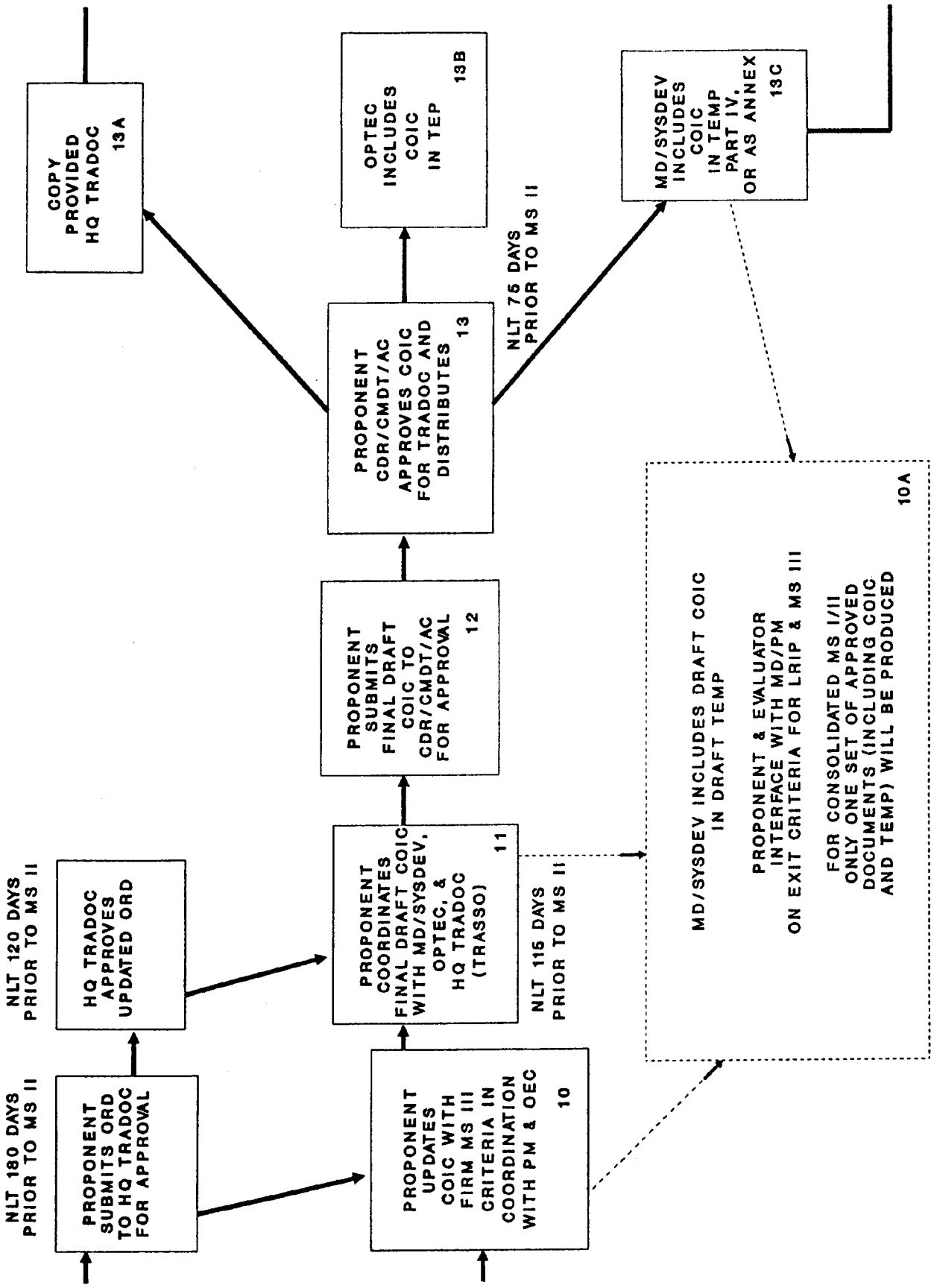


**Figure 4-13. Process for ACATs III/IV Materiel and Theater/Tactical Class V Systems not on the OSD T&E Oversight Light**

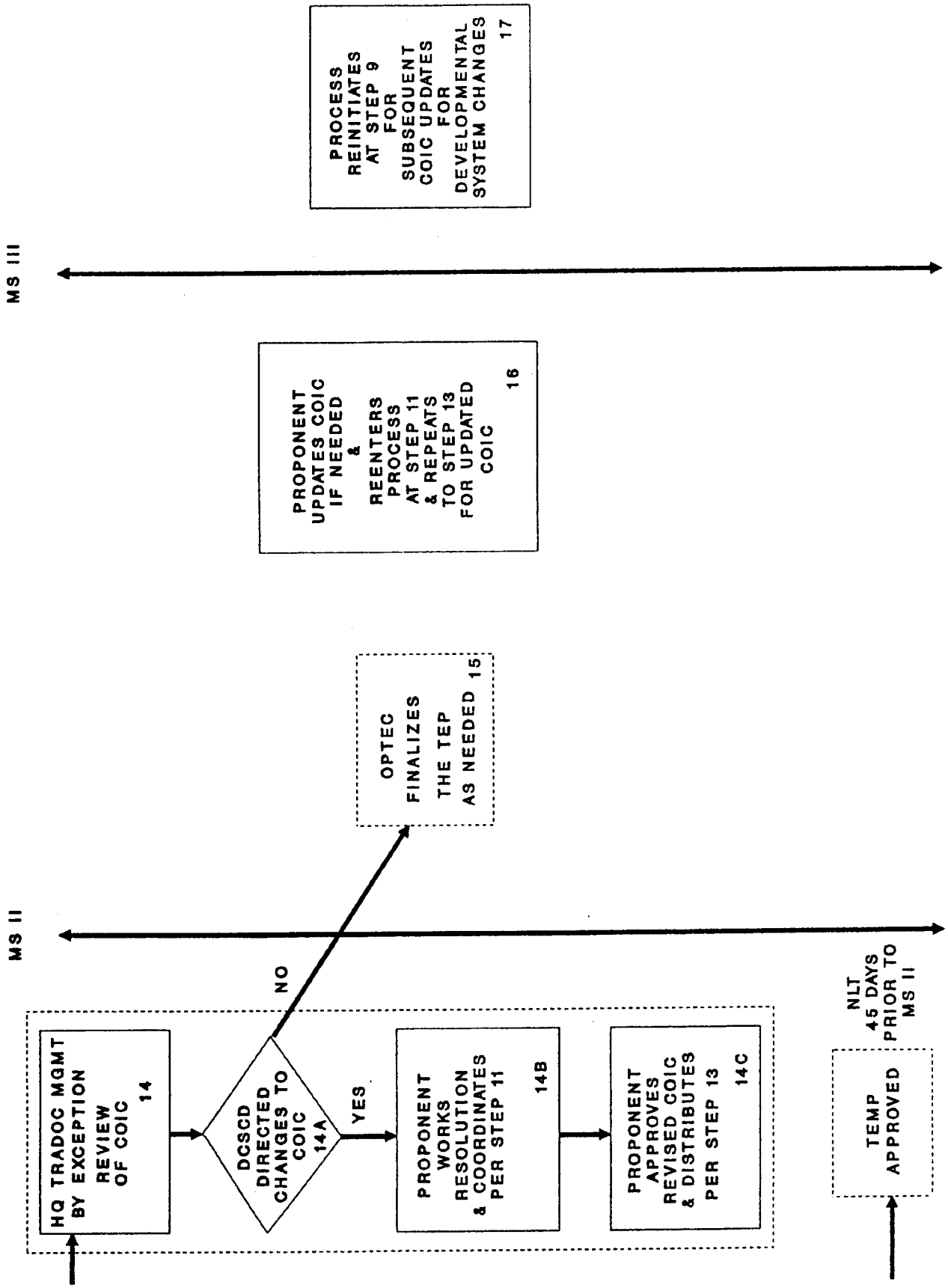


**Figure 4-14. Process for ACATs III/IV Materiel and Theater/Tactical Class IMA Systems not on the OSD T&E Oversight Light**

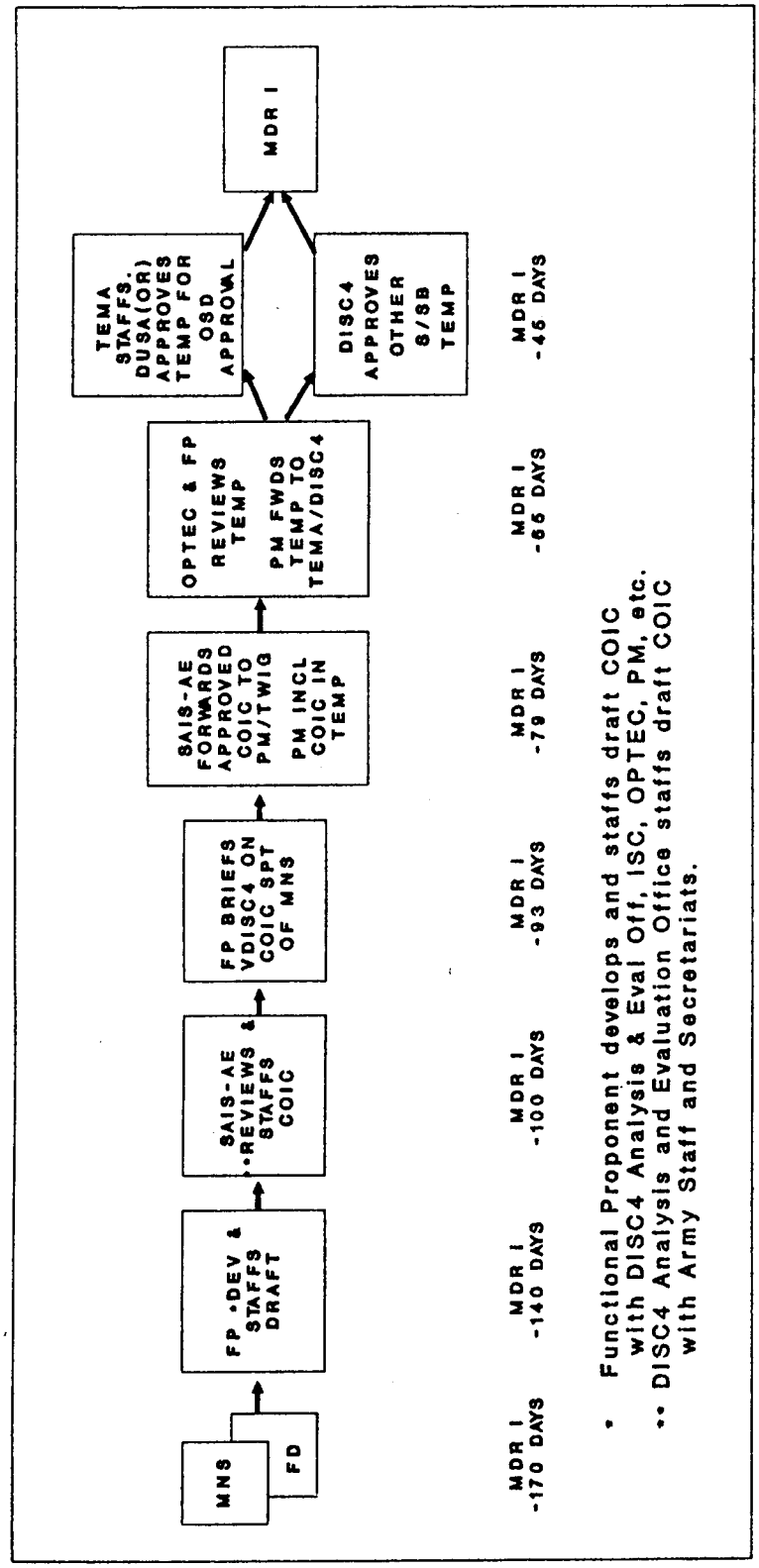


**Figure 4-15. COIC Process for Classes II–IV Strategic and Sustaining Base Information Mission Area Systems**

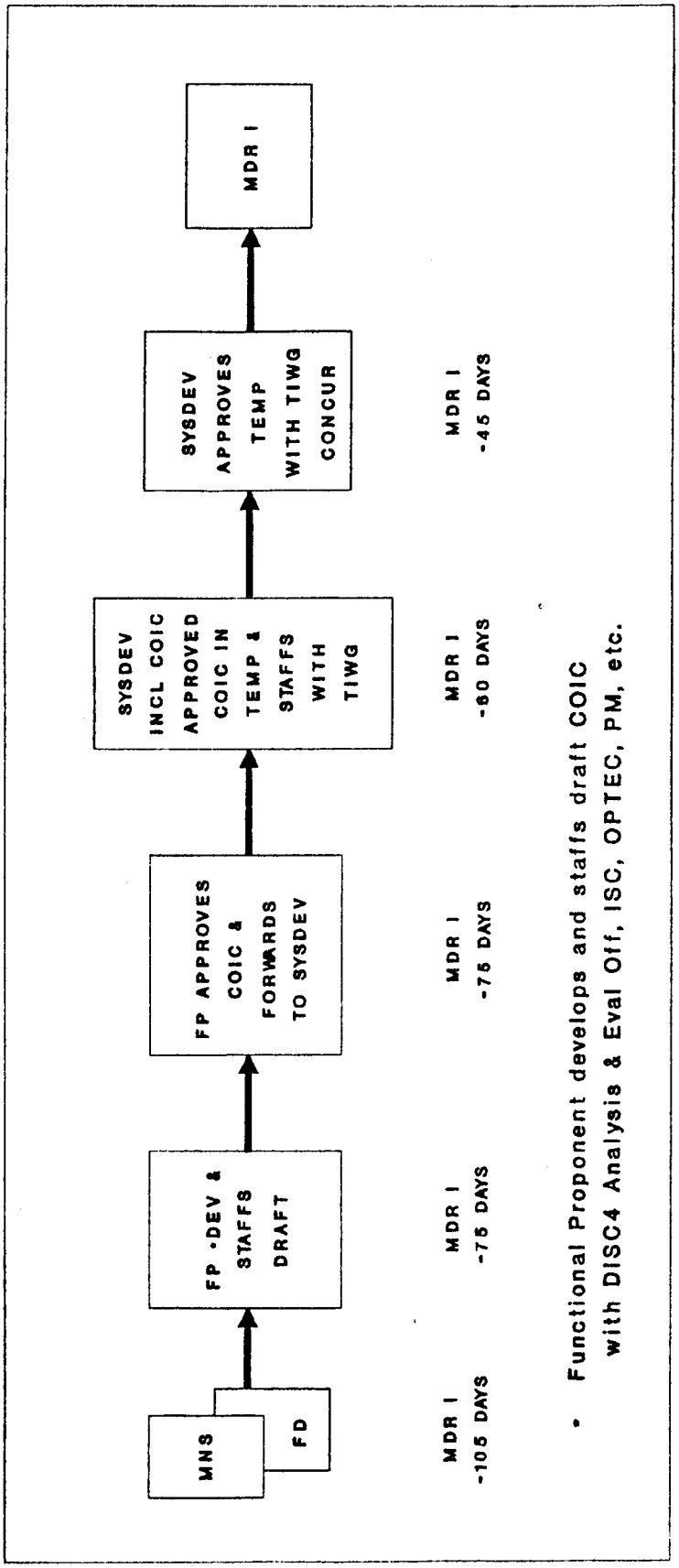


**Figure 4-16. COIC Process for Class V Strategic and Sustaining Base Information Mission Area Systems**

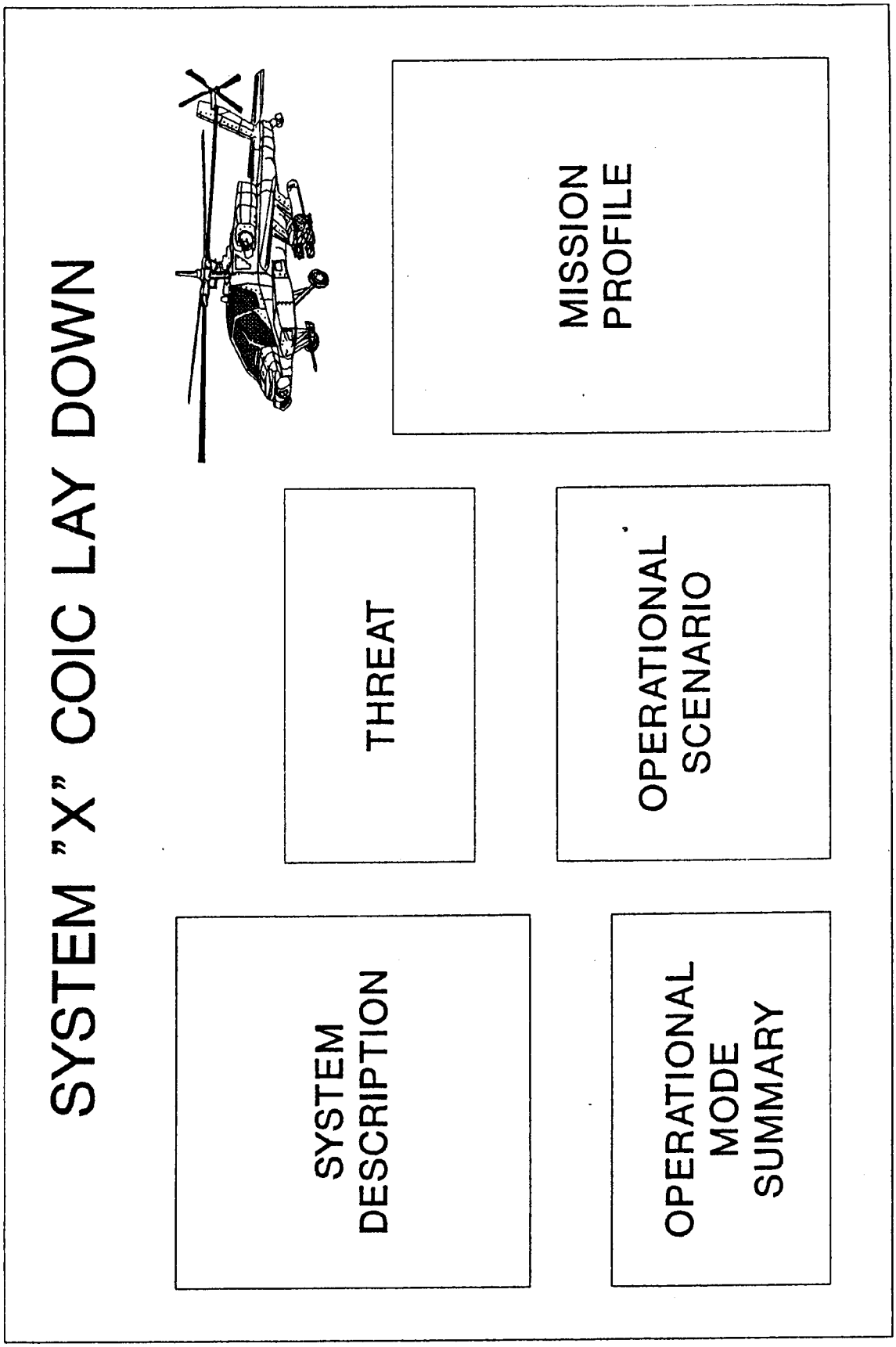


**Figure 4-17. Materiel System ORD–COIC Crosswalk "Horse Blanket" for ADCSOPS–FD COIC Approval**

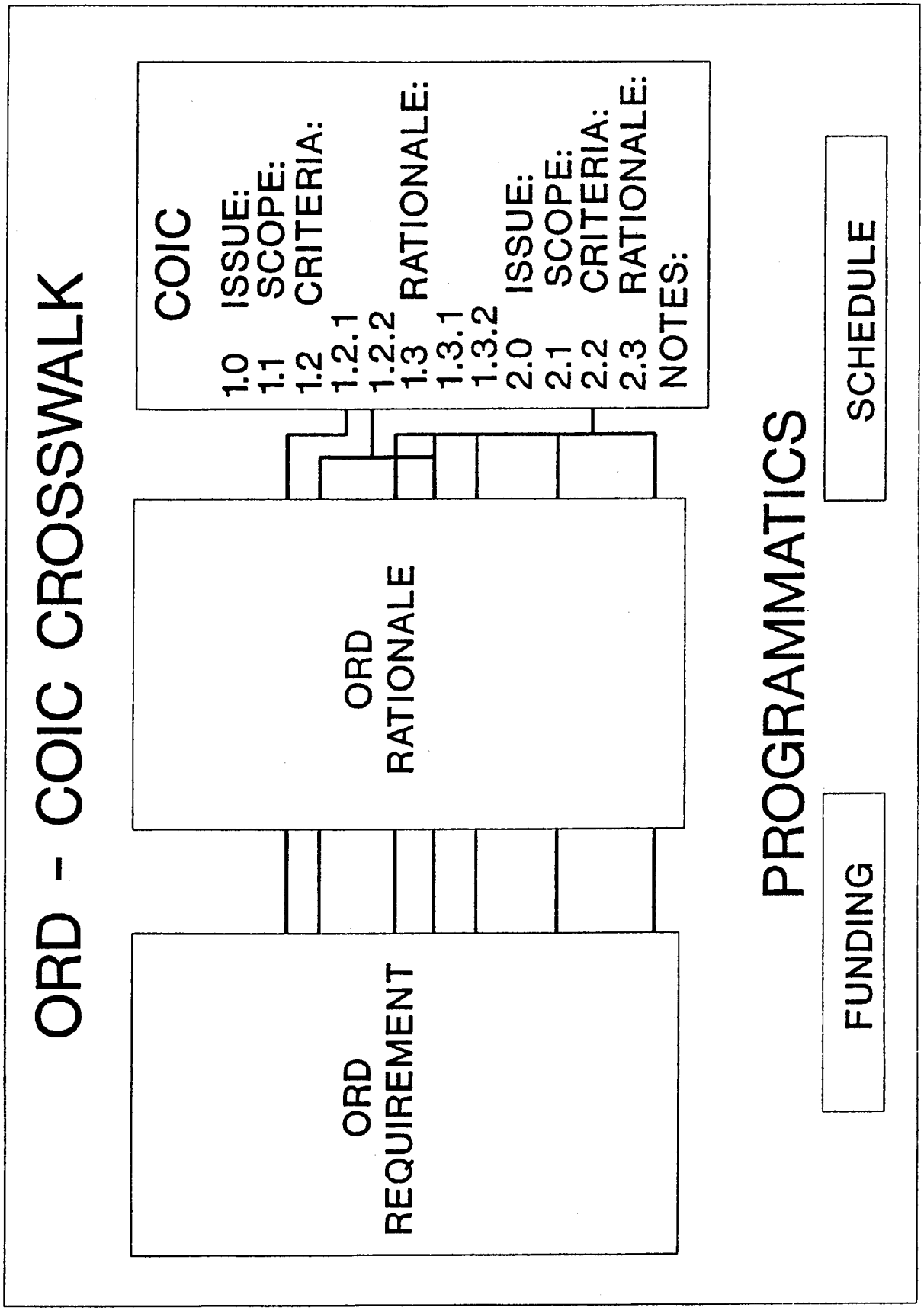


**Figure 4-18. Materiel System ORD–COIC Crosswalk "Horse Blanket" for ADCSOPS–FD COIC Approval–Continuied**

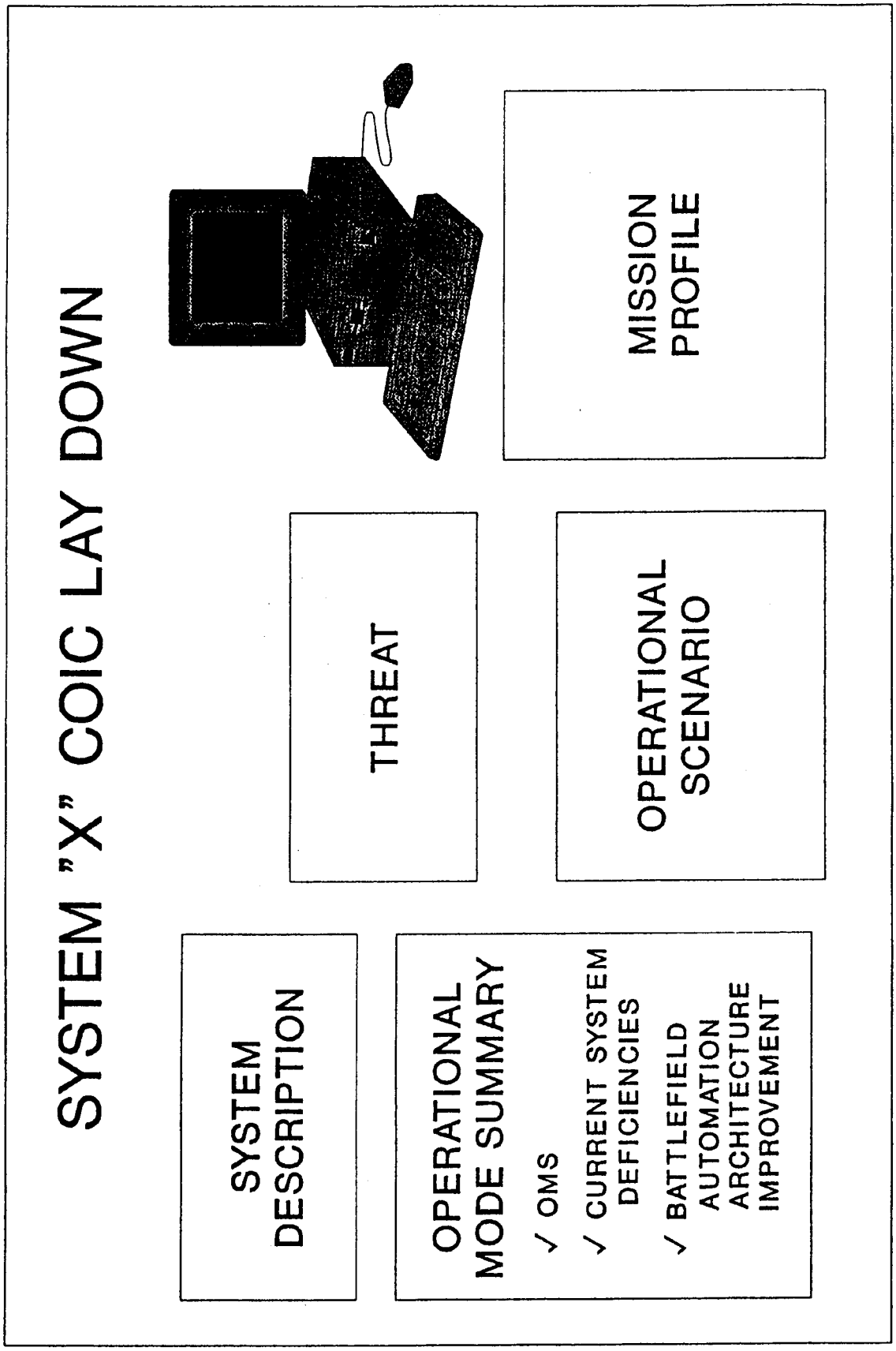


**Figure 4-19. Theater/Tactical IMA MNS/FD-COIC Crosswalk "Horse Blanket" for ADCSOPS–FD COIC Approval**

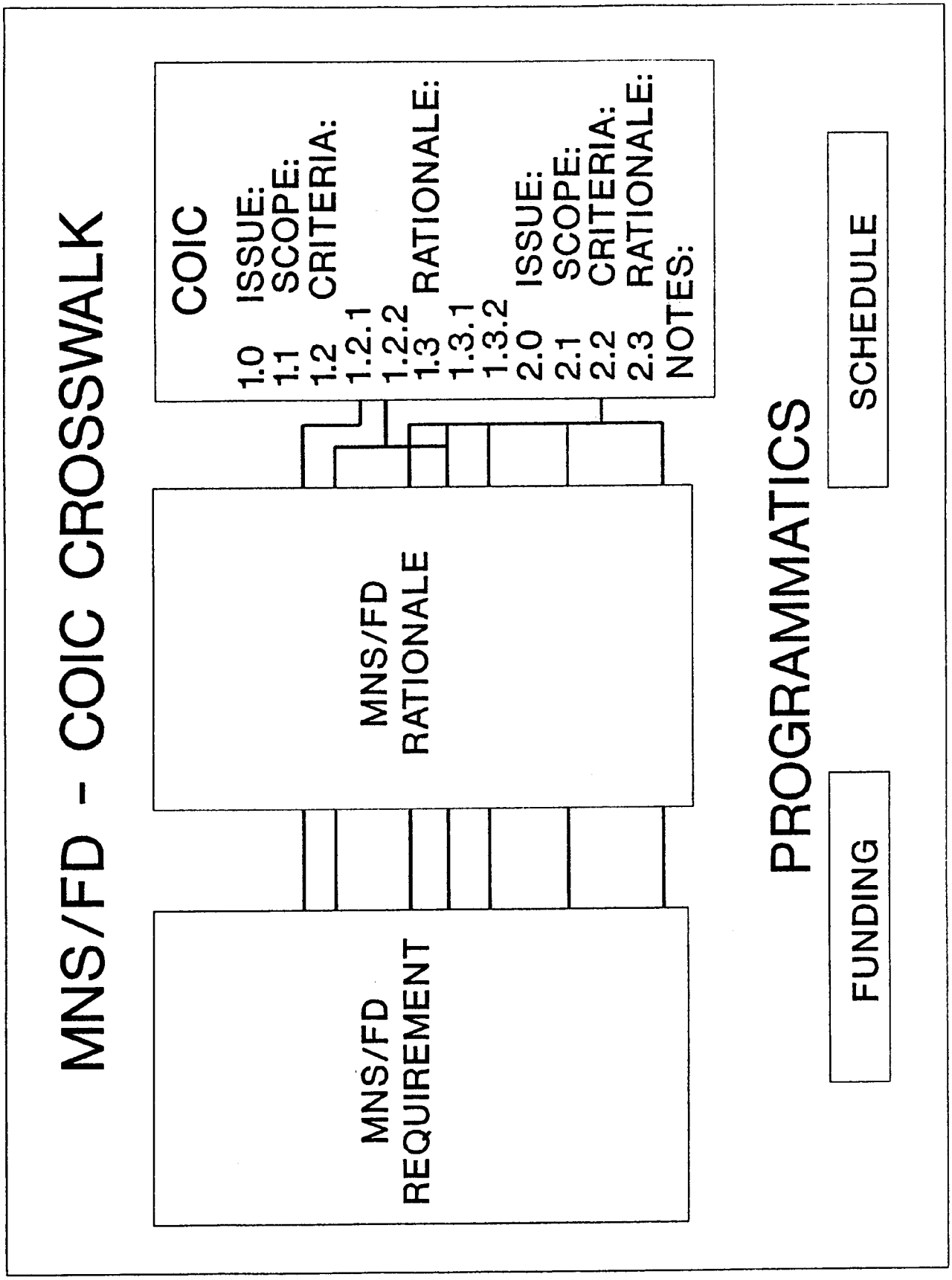


**Figure 4-20. Theater/Tactical IMA MNS/FD-COIC Crosswalk "Horse Blanket" for ADCSOPS–FD COIC Approval–Continued**

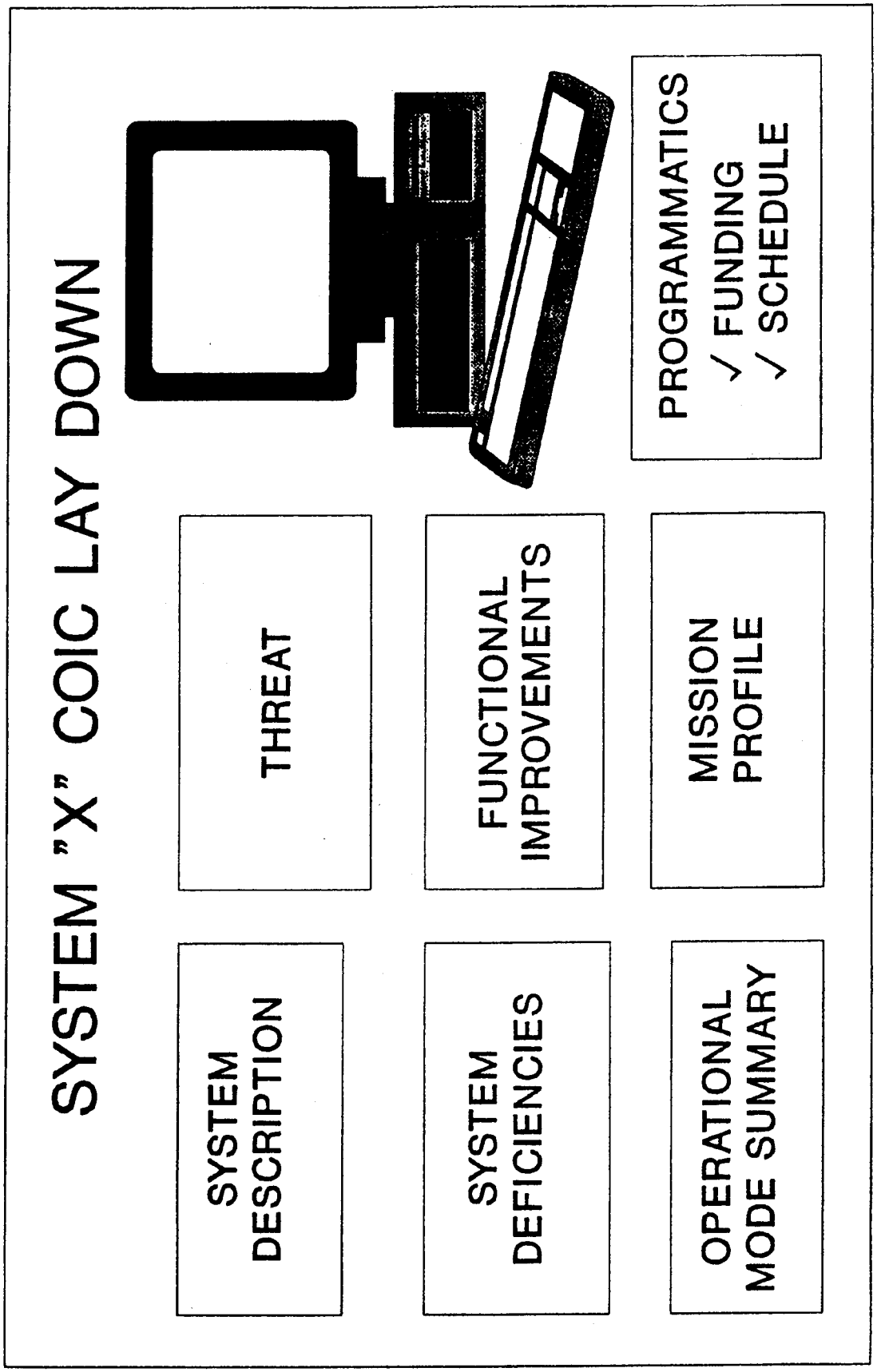


**Figure 4-21. Strategic and Sustaining Base IMA MNS/FD–COIC Crosswalk "Horse Blanket" for VDISC4 COIC Approval**

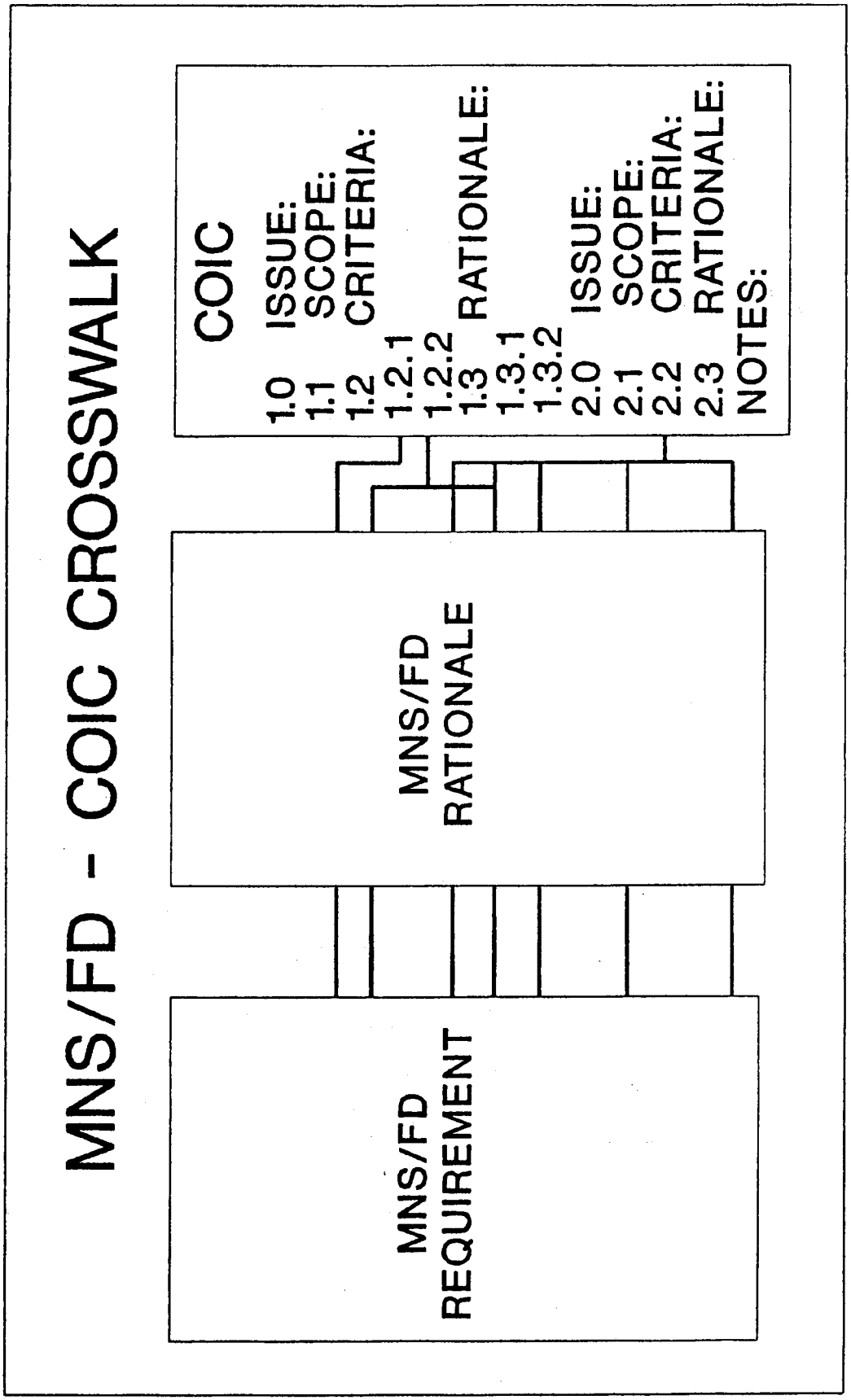


**Figure 4-22. Strategic and Sustaining Base IMA MNS/FD–COIC Crosswalk "Horse Blanket" for VDISC4 COIC Approval–Continued**

# Chapter 5
# COIC Development Considerations and Guidelines

## Section I
## Overview

### 5–1. COIC purpose

*a. Primary purpose.* The primary purpose of COIC is to focus and support milestone decisions. They prescribe (and provide a consistent emphasis on) the user's minimum operational effectiveness and suitability expectations for the total operational system for a go-ahead decision at the full production (MS III) decision. COIC reduce the multitude of operational considerations to a few operationally significant and relevant mission focused issues and criteria. The COIC are relevant to both the combat mission operations and the full production decision, integrating operational mandates with maturity considerations for the total operational system. COIC are initially developed for the TEMP, approved prior to MS I, and updated as necessary thereafter. For intermediate milestone decisions (for example, MS II (development approval) and LRIP authorization), the COIC provide operational focus and essential objectives to assist in judging the operational azimuth and potential of the concept or prototype.

*b. Secondary purposes.* Secondary purposes of COIC include serving: to focus and prioritize the operational evaluation effort, (for example, the IOE designs and reports evaluations which assess system status against COIC for a decision review); to identify operational priorities for the acquisition effort (for example, the system must satisfy criteria or be otherwise operationally justified to proceed); and to foster a coordinated effort by the members of the acquisition team by identifying what is operationally important, (for example, provide operational emphasis and focus for CBTDEV/FP and IOE assistance in PM/MATDEV/SYSDEV formulation of milestone decision, review performance exit criteria).

*c. COIC relationship to operational test.* COIC are not operational test (OT) issues and criteria.However, COIC, being operations relevant measures, must lend themselves to measurement during OT or other operational simulation methods. As stated above, the primary purpose of COIC is to support milestone decisions and secondarily the operational evaluation. Data to answer the COIC can come from any credible source, (for example, Initial Operational Test (IOT), other operational test, developmental test, field data, collection, studies/simulations, and so forth). While IOT is mandatory by law for ACATs I and II programs, other programs may not require OT for the MS III full production decision (for example, nondevelopmental items). Consequently, the IOE will in coordination with the TIWG determine the need for operational testing as well as other data sources to answer the COIC. The IOE must determine and document in the TEMP the appropriate data source for COIC resolution. The CBT/DEV proponent/FP viewpoint during development and approval of the COIC must be, "This is what is needed to make the full production decision regardless of what data sources will be used to answer the COIC." The COIC are acceptable as long as they are 'musts' for the decision and can be answered by the independent operational evaluator.

### 5–2. COIC concept

COIC are, by definition, those decision maker key operational concerns (issues) with bottom line standards of performance (criteria) which, if satisfied, signify that a system is operationally ready to proceed during the MS III acquisition decision.

*a. Critical operational issues.* COI are those which must be answered for the MS III full production decision to proceed. They are operationally oriented and not technology ,cost, or politically focused. A system is considered operationally ready (effective and suitable enough) to proceed to full production when the following operational concerns are answered affirmatively:

(1) Can the system accomplish its critical mission(s)?

(2) Can the system maintain preparedness for critical mission(s)?

(3) Can the system be sustained during combat? NOTE: This does not mean that there are always three COI. These concerns may be adequately addressed in one, three or more COI as appropriate for a system. However, COI by their nature is few in number.

*b. Criteria.* COIC criteria are bottom line standards of performance for satisfying a COI and are "show stoppers" if not satisfied for the MS III full production decision. If a shortfall exists for one or more of the criteria, convincing evidence (that is, other effectiveness, sustainability, and cost data, analyses, and resulting considerations along with review of program alternatives) must be provided for the decision authority to allow the program to proceed. Like the issues, the criteria are operationally oriented and not technology, cost or politically focused. This does not mean that the criteria are operational test oriented, just that the criteria provide operationally relevant measures. While most criteria will be answered using multiple data sources including some form of operational test, some criteria, such as NBC contamination hardening(when a specific program objective), must depend on technical test or simulation data. Each critical operational issue will have at least one criterion.

*c. Total operational system focus.* The system of concern is the total operational system (See Fig 5-1) as a composite rather than any of its component parts.Simultaneously, the total system of interest may be a single system,(for example, a truck with trailer) or an operational unit (for example, a team or platoon). This has several benefits, not the least of which is fewer issues. In addition, they are more relevant to operations than if focused on system components, and the potential for duplicate coverage is reduced.

*d. COIC structure (Figure 5-2).* COIC format provides for each issue: a scope paragraph(conditions for evaluating the issue), its associated criteria, and a rationale section (basis for each criterion). Additionally, the structure provides a note section including two standardized mandatory notes (the first addressing the total system focus and coverage of the criteria; the second addressing the pass/fail application of the COIC) and other system specific notes as needed. A third mandatory note (stating that COIC are based on initial requirements and will be updated prior to MS II) is included for COIC supporting the MS I TEMP. As the structure indicates, the criteria are the instruments for judging whether an issue is satisfied (achievement of all criteria results in a satisfied issue). This structure applies to COIC coordination, approval, and processing; TEMP content; and TEP content. COIC are coordinated, staffed, and approved as a stand-alone document. Figure 5-2 provides more details on the COIC coordination and submission format.

*e. Initial COIC development and update.* COIC are initially developed, approved, and included in the TEMP approved prior to MS I. As the program progresses they are updated as needed, particularly in response to the ORD for MS II.The issues being based on the MNS will seldom change; however, the criteria will change as the operational requirement matures and in response to significant program restructures (for example, shifting of preplanned product improvements). Criteria for the COIC applicable to the TEMP at MS I may be "soft", (that is, provide a performance standard but not a final performance threshold; for example, must have high probability of accomplishing mission "x"). Criteria will be"firm", measurable performance thresholds for the COIC applicable to the TEMP at MS II and for subsequent COIC updates. COIC updates required by program restructure/redirection between MS I and II (but not in response to the revised ORD preparatory to MS II) may continue to be "soft". These are in effects the MS I TEMP COIC.

### 5–3. Front-end analysis

*a. Key system knowledge to attain.* As with many processes, that for COIC first requires that the writers do the necessary research-laying the groundwork-which will serve as a foundation for the effort. In short, the writer must be cognizant of the system and the "lessons learned" on similar systems to do a credible job. Key considerations include, but are not necessarily limited to:

(1) The necessity and the justification for a new system or modification to an existing system.

(2) The system's critical mission(s) and function(s).

(3) The system's employment and sustainment concepts.

(4) The system's acquisition status.

(5) Acquisition experiences for similar systems, for example, reason for T&E or proceed decision problems, and so forth.

(6) Recent COIC approval process experiences, for example, samples of and/or "lesson learned" from those that engendered questions, guidance, rejection, or approval by decision makers.

*b. Key information sources.* Key documents which serve as sources for "get smart", information are itemized below. Each is important in its own right, but of greater importance is their contribution to the synergism of system documentation. The COIC writer must become thoroughly familiar with their purpose and content for those applicable to the system before proceeding. This list is not meant to be exhaustive;therefore, the COIC writer must during this phase be careful to identify those other system peculiar documents with information in the area noted above (Para 5-3a).

(1) *Mission Need Statement.* (Material and information systems).

(2) *Operational Requirements Document.* (Material systems).

(3) *Functional Description.* (Information systems).

(4) *System Threat Assessment Report.* (Material systems).

(5) *Cost and Operational Effectiveness Analysis.* (Material and information systems).

(6) *Reliability, Availability and Maintainability Rationale Report.* (Material systems).

(7) *Milestone Decision Review minutes.* (Material and information systems).

(8) *System specifications-Request for Proposal.* (Material and information systems). NOTE: Class I IMA systems are ACAT I material systems and may have both material and information system documents listed above as necessary or as directed for the program.

## 5–4. Relationships

In the broadest sense, COIC are derived from the documented operational requirement to reflect those minimum essential operational concerns and operational performance standards essential to the achievement of full production authorization at the MS III decision. They serve as the priority focus for the supporting operational evaluation. In detail, these inherent relationships to the requirement, the decision process, and the supporting evaluation are more complex.

*a. COIC and the operational requirement.* The operational requirement along with key employment considerations are essential to establishing operationally valid, relevant and credible COIC. As depicted in Figure 5-3, the operational requirement presents itself in many forms dependent on the system. If the COIC developer and the acquisition team do their jobs correctly, there will be compatibility between COIC and the key documents listed.

(1) *COIC and the operational requirement documents (MNS/ORD).* For material system acquisitions, the critical operational issues will be based on the MNS and thus unlikely to change as the program proceeds. The criteria for material systems will be based on the ORD and thus change as the requirement matures. IMA systems, which are not part of a material acquisition do not have a document comparable to the ORD; therefore, both their issues and criteria are based on the MNS. The COIC writer for IMA systems uses the FD to support the MNS. (A note of caution applies here regarding the potential for technical measures and lack of operational relevance for some ORD/FD requirements. The COIC writer is often better served by the rationale for the requirement than by using the actual requirements). "Being based on" does not mean that issues and criteria are direct lifts from these documents, but that there is a clear, audible foundation for the issues and criteria in these documents. For example, the ORD may require a significant survivability improvement over the existing system, whereas the COEA and cost considerations may result in a criteria to complete 20 percent more missions with 50 percent more threats neutralized. The COIC rationale provides a crosswalk between the ORD minimum acceptable requirements and the COIC.

(2) *COIC and the COEA.* The COEA is the primary analytical document of operational consideration during MS I and MS II decisions. It compares the relative cost and operational effectiveness for alternative concepts considered and indicates their relative status to the baseline. As such, it represents significant expectations for the concept chosen to proceed. The COEA provides relevant effectiveness and cost considerations such as significantly improved performance at significantly reduced cost. For instance, if the COEA shows a significant cost saving over the baseline and this is the purpose of the acquisition (modernization), then the criteria should reflect a system which is as mission capable, trainable and sustainable in combat as the existing system. The OCEA uses various measures of performance (MOP) for which sensitivity runs could aid in establishing criteria for the COIC. Because of the significance of the COEA to the program, there must be an audit train of consideration between the COIC and the COEA. DODI 5000.2 requires linkage between measures of effectiveness (MOE) for COIC and T&E for ACATs I and II systems to include the system requirements. This linkage is to allow for evaluation of whether the system remains cost and operationally effective when performance shortfalls are found during T&E. The COIC will have such a defined relationship with the COEA where possible.

(3) *COIC and the system specifications.* The primary concern here is compatibility between the COIC and the specifications (or contract represented by the specifications). The MATDEV/SYSDEV assures this compatibility when COIC, ORD/FD, and specifications development are synchronized, or, when COIC are developed late, advises when an incompatibility exists. In the case of incompatibility, the ORD/FD rules or an Army leadership decision is needed. Occasionally the specifications serve to document operational performance parameters, which did not make it into the ORD, (for example, an ORD requires a level of connectivity for communications users while the specification requires a level of successful transmission given connectivity exists).

(4) *COIC and other requirement documents(studies and cost).* When neither the MNS/ORD/FD, COEA, nor specifications provide all requirement information needed to develop valid COIC, other sources are tapped. Most of the time, these aspects are considered in establishing MNS/ORD/FD requirements (for example, operation and support costs are used to establish RAM requirements considered during COIC development).

*b. COIC and operational employment considerations.* To produce operationally realistic and valid COIC, the COIC writer must understand and continually focus on the operational mission(s) (described in the OMS/MP appendix to the ORD) and system employment tactics, techniques, and procedures. An understanding of how the system fights/operates/functions is critical to determining if system or organizational type measures should apply, (for example, a system, which fights as an element of a platoon, with target detection and hand-off for engagement accomplished internal to the platoon, should not be measured as a single, standalone system but as a platoon). Similarly, an understanding of how system operations will be logistically supported is essential in defining sustainment COIC. Operational requirements must, therefore, be examined in light of operational employment considerations to arrive at meaningful criteria for COIC.

*c. COIC and performance exit criteria.* COIC criteria by definition are bottom line standards which, if satisfied, indicate that a system is operationally ready to proceed beyond MS III to full production. Exit criteria, meanwhile, are established in accordance with DODI 5000.2 at each milestone for the next milestone, (for example, at MS II for MS III), and for major events between milestones, (for example, long lead time procurement and LRIP authorizations). They are minimum requirements that must be successfully demonstrated for the program to proceed through the gates. Performance exit criteria, as such, serve as decision point measures of progress, or "stepping stones" toward achievement of COIC criteria and eventually, mature system objective performance. While the CBTDEV proponent has the lead in developing the COIC for the MS III full production decision, the PM/MATDEV has the lead in developing exit criteria and does so with the assistance of the CBTDEV and in coordination with the independent operational evaluator. Most MS II performance exit criteria will measure technology maturity and the feasibility of fulfilling operational needs/

requirements. The full production performance exit criteria and COIC focus on a mission capable and affordable system. The relationship of COIC and performance exit criteria is depicted in Figure 5-4. This figure represents a criteria compendium as the system moves from MS II to MS III. Section IV, this chapter, contains a detailed discussion of criteria for critical operational issues. Exit criteria do not normally apply to IMA systems governed by DOD 8120 series and not under purview of DOD 5000 series.

*d. COIC and the operational evaluation.* The independent operational evaluator is responsible for planning an operational evaluation that will answer the COIC for the MS III full production decision. Any source of data (for example, operational test, developmental test, study, and/or survey) judged credible by the IOE can be used to answer the COIC. The evaluator reports the system achievement against the COIC at the full production decision. Plans and reports for follow-on operational evaluations will use these same COIC. The COIC are first documented in the TEMP prior to MS I to influence the program and operational evaluation planning and conduct leading to MS II. Additional responsibilities for the IOE include:

(1) Providing an evaluation of the operational status of the system and readiness to proceed at MS II and subsequennt milestone desicions.The MS II evaluation will consider the COIC. When tasked by the decision authority, providing follow-on operational evaluations after MS III to address correction of shortcomings found at MS III. This follow-on evaluations use the MS II TEMP approved COIC used for the MS III evaluation.

(2) Providing a determination whether the minimum acceptable operational performance requirements stated in the ORD have been satisfied.

(3) Providing a complete and comprehensive evaluation of the system's operational effectiveness and suitability. This includes being able to indicate or isolate the cause of operational shortfalls whenever possible.

(4) Identifying the data required from operational test, technical test, studies, and other sources to accomplish the evaluation (that is, define the specific test, study, and other issues necessary for evaluation).

(5) Providing a baseline comparison assessment for the full production decision.

*e. COIC and AOIAM.*

(1) To accomplish the above responsibilities, the IOE prepares a more definitive set of operational issues and criteria known as additional operational issues and associated measures. The IOE documents the AOIAM in Chapter 2 of the Operational Test and Evaluation Plan. AOIAM are officially coordinated with the TIWG as part of the TEP. Significant, unresolvable differences between the IOE and other TIWG principals (particularly the CBTDEV/FP or PM/MATDEV/SYSDEV) regarding AOIAM will be raised via command channels to the DUSA (OR) if necessary for resolution. If TEP coordination is delayed, TIWG principals should make it an agenda item and raise an issue through command channels if the IOE does not provide appropriate resolution. The generation of AOIAM gives the IOE an enormous amount of latitude with regard to evaluation scope and focus. However, inappropriate AOIAM may result in unnecessary, increased T&E resource requirements or in misleading the acquisition community and decision makers. Informal, early coordination of AOIAM should be a norm for the IOE and sought by the CBTDEV/FP and PM/MATDEV/SYSDEV to avoid major problems late in the program requiring significant revision to T&E plans

(2) While the focus of COIC is the minimum needed to know (that is, what is operationally good enough) for a go-ahead decision at the full production decision point, AOIAM focus on a complete and comprehensive evaluation of the system's operational effectiveness and suitability. The COIC concern is an operationally effective and suitable total system, as evidenced by the total system's readiness for and capability to sustain accomplishment of critical missions during combat. The AOIAM concern is for the operational effectiveness and suitability of the total system as evidenced by performance of the components of operational effectiveness and suitability (See Fig 5-5).

(3) AOIAN are developed by the IOE based on the COIC, MNS, ORD, system specifications, COEA, applicable regulations and pamphlets, RAM Rationale Report, and other sources. The IOE coordinates AOIAM with CBTDEV/FP, operational and developmental testers, PM/MATDEV/SYSDEV, and other TIWG principal members. AOIAM are structured in the same basic four-part format as COIC (that is, the issue with associated scope, criteria, and rationale). Since AOIAM support a complete and comprehensive evaluation, they tend to be more diagnostic and may include investigative issues (start with"How well" or "What is") which do not require criteria. COIC never include investigative issues. AOIAM support COIC resolution as follows (See Fig 5-6):

*(a)* Allow the IOE to specify the data required from multiple sources (in the form of issues and criteria) for COIC not directly answerable from operational test. For tester, analyst, and evaluator execution purposes, these AOIAM are just as critical as the COIC they support. If the data are not provided, the IOE will not be able to evaluate the issue for the full production decision.

*(b)* Provide the IOE the diagnostics to identify factors contributing to or causing a performance shortfall for one or more of the COIC.

*(c)* Complement the COIC by providing a comprehensive evaluation of all aspects of the total operational system. In the event of a performance shortfall for one or more COIC, the AOIAM may provide the evidence needed to convince decision makers that the system is good enough to proceed (for example, baseline comparison or minimum acceptable operational requirements accomplishments). Even when the COIC are satisfied, the AOIAM may identify areas for continued improvement as the system proceeds in acquisition (for example, fixes for shortfalls against ORD//FD minimum acceptable operational requirements).

## Section II
## Identifying the Issues

### 5–5. Characteristics

Critical operational issues, by definition, are those key operational concerns expressed as questions, which when answered completely and affirmatively signify that a system or material change is operationally ready to transition to full production. They are few in number based on the MNS, and focused on the MS III full production decision. There are four key components of a properly structured critical operational issue statement:

*a. The interrogative.* An interrogative word demanding a "yes" or "no" answer (for example, "Does", "Can" or "Is").

*b. The system.* Identification of the system of concern (for example, system "X" or a platoon equipped with system "X").

*c. The capability.* A capability of concern (for example, robust voice and data communication or effective aerial reconnaissance).

*d. The conditions.* A set of applicable operational conditions (for example, during combat operations or as employed by Special Operations Forces).

### 5–6. Focus

*a. Total operational system concern.* Critical operational issues focus on the total operational system as an entity and its ability to satisfy the operational deficiency or efficiency defined in the MNS. This focus for COIC results in a few issues which seldom change as the system, progresses through the acquisition process. While the norm is three issues (one for mission capability, one for deployability/mobility interoperability, and one for sustainability), as few as one (single shot item or system change) or as many as six (a family of trucks)many be appropriate. This focus breaks the mindset of separate operational effectiveness and suitability issues. A single issue will often cover the areas of mission performance, survivability, RAM, MANPRINT, and software performance (for example, probability of successful communications for a communications net or probability of kill for a direct fire weapon).

*b. COI relevancy.* Operational relevancy translates as "accomplish critical mission(s)", "maintain preparedness for operations", and "can be sustained in combat." "Accomplish critical mission(s)" means not only that the system is capable of performing its mission functions, but is reliable and survivable to the degree needed during the mission; Can interoperate with Army, Allied and other Service systems necessary for mission success; and, for rapid deployment and remote units, is deployable to the site of combat operations. NOTE:For other than rapid deployment or remote units, deployability may be a sustainability issue. "Maintain preparedness for operations"means that crews must maintain proficiency in garrison. "Sustained in combat" means that planned logistics support must provide responsive maintenance, supply, and transportation for the system during combat.

*c. COI development procedure.* From the view of minimizing the COI, preparation of the COIC starts with the mission accomplishment issue. Normally, a good procedure is to frame the critical mission/task order to be given by higher headquarters as the issue, (for example, "Can the unit equipped with system" "X" "take and hold the tactical objective on the future battlefield?" or "Can truck " X "pick up and transport required tactical loads to objective location as required in support of combat operations?") Next, complete the issue with its scope, criteria and rationale. Then, if there is anything remaining unaddressed in the mission accomplishment area, define that issue with its scope, criteria, and rationale, remaining cognizant of the first issue and criteria to avoid duplication or overlapping coverage. Once the mission area is complete, consider the need for a sustainment issue. If this is not needed, provide the rationale in your cover memorandum when coordinating the COIC and when submitting the COIC for approval. Once the set of COIC is complete, review it for duplication or overlapping coverage and eliminate any issue(s)subsumed by another.

### 5–7. Developing the Issue-Questions to ask

*a. What is the system of interest?* For example: individual system (tank, rifle and so forth), system of systems (communications network/air defense platoon/information management system), or system component change(improved missile warhead).

*b. Why the system (or system change)?* For example: the deficiency the system is being designed to correct or opportunity it is intended to seize.

*c. What is (are) the critical mission(s)?* To determine, consider all missions against the question,"Which mission requirement(s), if not satisfied, will engender a No-Buy decision?" and where there is more than one mission, "Which mission is the more rigorous/demanding?"

*d. Are there critical user, unit concerns?* For example, "Is the system deployable by light forces?"-if not, "Is a No-Buy decision in order?"

*e. What are the concerns regarding sustainment?* For example, "Is the Ammunition Supply Point throughout capacity sufficient to support a significantly higher rate of fire capability for a cannon artillery system?"

### 5–8. Developing the Issue-DOs and DON'Ts

*a. Focus.* DO focus the issue so as to properly direct the evaluation and decision. State a question which asks if a task can be performed under the conditions of concern (for example, "Does the Nipper effectively close with, detect, engage and destroy threat armor under expected battlefield conditions?"). NOTE: Each DO is follwed when appropriate by one or more companion DON'Ts.

(1) DON'T over generalize (for example, "Is the Nipper operationally effective?" or "Is the Nipper operationally suitable?").

(2) DON'T include criteria in the issue statement (for example, "Does the Nipper find and kill "X" percent of threat armor within its area of operations?").

*b. Decision issue.* DO formulate the issue as a question which demands a "yes"or "no" answer (a decision). Begin the question with words such as"Can," "Does," or "Is" (for example, "Can the Nipper equipped units achieve and maintain a level of training readiness during peacetime and provide for a wartime readiness capability for sustained combat operations?"). DON'T formulate the issue as an investigative question which demands an analytical answer by beginning the question words such as "How well", or "What is". For example, contrast "How well does the Nipper close with, detect, engage...?" with the example given in Paragraph 5-8a above. NOTE: An investigative issue may be appropriate for an AOIAM since their focus is the evaluation and not the decision.

*c. Few issues.* DO limit to a few issues by focusing on the total system need and concerns for the MS III full production decision.

(1) DON'T duplicate coverage by overlapping issues (without good reason).

(2) DON'T get bogged down in the "trenches" of a system (for example, elements of operational effectiveness/suitability and ORD operational characteristics).

*d. Apply experiences.* DO use success as a guide, not as a rule. Apply experiences during recent COIC approval actions while recognizing system differences.

## Section III
## Defining the Scope

### 5–9. Characteristics

The scope, by definition, is a statement of the operational capabilities, definitions, and conditions which focus each issue and its evaluation. There will be a separate scope statement for each issue even though the scope for the second or successive issues may refer to and expand upon the scope statement for issue one. The scope normally begins with the words, "This issue examines..." and identifies:

*a. Capabilities.* Operational capabilities to be examined (for example, mission accomplishment, sustainment training, and/or combat sustainment).

*b. Definitions.* Special terms, either system peculiar requiring definition(for example, system description, communication connectivity or vehicle payload) or measurement peculiar (for example, start/stop points for time measures).

*c. Conditions.* Evaluation conditions including tactical context and scenario the OMS/MP (for example, or the Southwest Asia standard scenario) (force structure and deployment considerations (for example, Doctrine and Organization (D&O) Test Support Package(TSP) and Corps/Division/Other slice); approved threat (for example, threat TSP and STAR); crew and maintainers descriptions; and environmental conditions (for example, natural and dirty battlefield).

*d. Other data sources.* When an issue and any of its criteria require technical test or modeling/analysis support.

### 5–10. Defining the scope-Questions to ask

*a.* What are the operational capabilities of concern?

*b.* Do force-on-force operations apply, and if so at what level (for example, electronic warfare only or armored force in accordance with approved threat package and scenario)?

*c.* What friendly force structure and operations are necessary(for example, single system only or force slice; crew and maintainers; or approved OMS/MP and scenario or only elements there of)?

*d.* What environments apply? (for example, natural ones-terrain, visibility, day/night, climate-and battlefield mission oriented protective posture (MOPP) level-obscurant, electronic counter measures (ECM) and so forth.

*e.* What terms need definition (for example, those which are system, operation and measurement peculiar)?

*f.* Do any special evaluation methods apply (for example, technical test or application of analytical means)?

### 5–11. Defining the scope-DOs and DON'Ts

*a. Focus issue.* DO focus evaluation of the issue by identifying operational capabilities of concern, applicable operational conditions, applicable definitions, and special evaluation methodologies (that is, when technical test, simulation, or other analytical means are used in lieu of or to supplement OT).

(1) DON'T specify criteria (that is, characteristics with performance standards).

(2) DON'T specify rationale (that is, justify the issue of criteria).

(3) DON'T include specific conditions/definitions better suited as part of the criteria (for example, detection/engagement envelope, line of sight, and pallet weight for upload and so forth).

*b. Development procedure.* DO initially prepare the scope in draft and finalize only after developing applicable criteria (that is, selection of specific criteria may in fact necessitate unique conditions, definitions, or evaluation methodologies not initially anticipated).

## Section IV
## Developing the Criteria

### 5–12. Characteristics

Criteria are, by definition, those measures of performance, which when achieved signify that the issue has been satisfied.Criteria will be few in numbers, but there will be at least one criterion for each critical issue. Criteria will:

*a. Be focused.* COIC focus on the total operational system and the MS III full production decision, even though they may be "soft" for MS I(for example, "Will be capable of killing tank" X "." , versus "Will have a 50 percent chance of killing tank "X""). When "firm" criteria are known early, they will be stated (for example, "Will be capable of roll-on, roll-off transportation by C-130 aircraft.")

*b. Reflect system maturity.* COIC are formulated without losing sight of the fact that the "system" is in a constant sate of development (for example, even a nondevelopmental item frequently does not have mature tactics, techniques, procedures, training, and logistics at the MS III decision).

*c. Be "show stoppers".* COIC are formulated to reflect "show stopper" measures (for example, if all criteria are met, the system is operationally good enough; or, to the contrary, if a criteria is not met, the full production decision should not be given). Mandatory Note #2 (See Section VI, this chapter) is provided to avoid use of criteria as automatic pass/fail measures during evaluation and decision making.Other credible evidence of an operationally effective and suitable system when available will be considered to arrive at the proper decision.

*d. Audited to the requirement and COEA.* This does not mean that criteria are a direct lift from these documents, but that they are traceable by rationale to specific requirements and findings of these documents. Criteria may be developed by combining two or more requirements into a single higher order of measure, or drawn from sources other than the requirement (like the COEA) to provide specific measures of performance not provided in the requirement document (for example, the ORD requires improved survivability whereas cost and COEA data support a need for 20 percent more combat capable systems).

### 5–13. Criterion statement

*a. Criterion statement components.* Figure 5-7 depicts the major elements of a criterion statement, each of which must be addressed, and presents an example of a properly constructed criterion statement with explanations for the specific working. Special emphasis, when applicable, must be devoted to choosing which type of total system (individual or unit)is to be examined and whether the characteristic of interest is a performance standard or a baseline comparison. Additionally, the following must be considered: criteria mature with the operational requirement ("soft" for MS I and "firm" for MS II); the system(hardware, software, tactics, techniques and procedures, and so forth) is still maturing at MS III; information available from the requirement document (lack of specificity in performance parameters may increase the potential for evaluation bias and thereby dictate use of baseline comparison); and the acquisition objective (cost may override performance and the criteria therefore reflect current system performance). As reflected in Figure 5-7, there are choices for each element wherein the correct choice is system/situation dependent (for example, a tank and a communications system will have differently structured criteria).

*b. Criteria structure illustration.* Consider the criterion statement. "The tank will kill at least 50 percent more enemy armored vehicles at ranges out to three kilometers." The object to be examined is "the tank". The characteristic of interest is "kill armored vehicles," which constitutes a critical performance capability and the qualifier"more" alludes to a comparison with a baseline. The magnitude of 50 percent is quantitative and the direction "at least". The constraint condition of "out to three kilometers" is both operational and tight, and "enemy" implies battlefield conditions. The scoring criterion is "kill", which would be based on definitions (mobility, firepower, catastrophic and so forth). NOTE: A caution on constraint conditions-they must be operationally realistic. If, for example, their interpretation allows for use of unrepresentative threat or friendly operations in test and evaluation, they have been improperly stated.

*c. Example measures.* fig 5-8 and 5-9 present additional system/situation examples of characteristics of interest and typical means of measurement. They are not complete criteria statements.

*d. Total system.* As indicated earlier, special emphasis must be placed on choosing the correct total system-an individual system or an organizational unit-to be the object examined (See Fig 3-10).Factors which would lead to selection of a single system include technical criteria (for example, ascend/descend a 60-degree slope);the system operates and/or is employed as an independent system(tractor and trailer); or the purpose of the acquisition is to benefit the system alone (for example, larger caliber tank main gun). Factors which would lead to selection of an organizational unit include: the purpose of the acquisition is to benefit a unit, for example, an automatic detection and defense system authorized one to a platoon to improve survivability and operations); the system operates and/or is employed as an element of a unit (for example, an air defense system-fire unit-which operates as a team member providing and receiving target detections, cueings, hand-offs, and engagements to and from other fire units in the platoon); the system represents a system of systems (for example, a force level communications system made up of multiple, dissimilar sub-systems);or a concern (characteristic of interest) which requires a unit of measure (for example, more combat capable vehicles remaining).

*e. Performance standard versus baseline comparison criteria.* Also as indicated above, special emphasis must be placed on determining whether the characteristic of interest can be stated as a performance standard or will require baseline comparison. Most characteristics of interest will be stated as performance standards:However, two key situations will dictate use of baseline comparison.system is a replacement system or a system change to an existing system and the requirement documents or other sources fail to provide an adequate basis for deriving performance standards; or, the independent operational evaluator identifies and justifies, to the satisfaction of the CBTDEV/FP, that there is sufficient risk of bias in T&E. Although this is a break with the past when baseline comparison was reserved for exceptional cases and then only when absolutely necessary, baseline comparison is now encouraged in the situations outlined. It should be kept in mind, however, that the use of baseline comparison criteria results in side-by-side comparison testing to support evaluation of the system. The criticality of this approach to the evaluation effort must therefore be sufficiently high to justify the expenditure of significant additional resources.

### 5–14. Developing the criteria-DOs and DON'Ts

*a. Minimum need.* DO focus on the minimum needed for the MS III full production decision-discard or revise if a shortfall would not be a"show stopper." NOTE: Each DO is followed, when appropriate, by one or more companion DON'Ts follows Each DO when appropriate.

(1) DON'T include "desired" characteristics.

(2) DON'T specify "firm" criteria for the MS I TEMP unless these are known to be stable (for example, transportable by CH-47D).

(3) DON'T embed peripheral issues in criteria to ensure evaluation (for example, the training program must be the optimum training strategy).

*b. Measures of performance.* DO use measures of performance, which undergird the system's operational effectiveness and suitability in terms of critical combat missions to be accomplished. (DON'T use measures, of effectiveness such as FER, LER or other COEA measures, which depend on large-scale modeling beyond the capability of the operational evaluation. Operational tests do not normally provide enough trials or steady state operations to revisit the COEA.

*c. Qualitative criteria.* DO specify qualitative criteria (which must be measurable)only when quantitative criteria are not applicable. DON'T specify a confidence level. Statistical confidence levels are test resource drivers and better left to the tester and evaluator.

*d. Test and evaluation limitation.* DO specify measures unconstrained by consideration of the applicable test/evaluation methodology to be used for resolution.

(1) DON'T exclude a critical criteria because it can only be answered by technical test or simulation (criteria focus on the operational evaluation and the decision, not a test).

(2) DON'T compromise criteria to accommodate test and evaluation frailties (that is, T&E instrumentation, facilities or other resources should not restrict the criteria if it is deemed critical).

*e. Probabilistic measures.* DO specify soldier-machine measures in terms of probabilities. However, they must be realistic (for example, use the median if a high degree of performance is not needed, or 80/90 percent if a high degree is needed). DON'T specify or imply 100 percent performance when operation must accomplish by the soilder.

*f. Conditions and definitions.* DO specify the conditions and definition needed for evaluation (for example, the operational constraint (engagement envelope) and/or scoring criteria (stop/start point for a time line, destroy/kill definition and so forth).

(1) DON'T leave ambiguities which can result in erroneous T&E of the criteria (for example, don't say "more survivable"because survivability can be measured as either more combat vehicles remaining at a given point in time, or as more threat kills because the vehicle remains combat capable longer).

(2) DON'T over specify constraints and definitions (for example, a constraint allowing operation only in temperatures above 70 degrees Fahrenheit would not support world-wide deployment; or the engagement constraint, "targets entering the crew's fire zone,"could be operationally limited by terrain rather than the range capability of a direct fire weapon).

*g. Total system measures.* DO specify total system measures (for example, operator load vehicle, accomplish OMS/MP at stated speeds, C-130 roll-on/off and so forth). DON'T specify component measures (for example, material/software performance, human factor constraints, technical standards and so forth).

*h. Lowest level system.*

(1) DO specify the lowest level system possible and appropriate(the preference is a single system but, when required, an organizational level may be more appropriate) (for example, the Paladin (M109A6) used the individual howitzer for mission accomplishment and the battalion for battlefield availability(survivability and operational readiness); Communications systems normally use nets for mission accomplishment and key components for set-up/tear-down times; trucks are typically assessed with trailers and so forth.

(2) DON'T measure a structure which obscures performance of the system of concern (for example, a major performance improvement to vehicle type in a fleet may provide significant improvement in overall platoon operations and only slight improvement in the combined arms team).

*i. Higher order measures:*

(1) DO specify higher order measures (for example, percent target kill, percent messages sent and received, forth).

(2) DON'T specify (for example, probabilities to detection, identification, hand-off, engagement, hit, and kill given a hit for a weapon; probabilities of connectivity, message receipt given connectivity and being available for a communications system, and so forth).

*j. Baseline comparison.* DO specify baseline comparison criteria only when appropriate (See Para 5-13. e above) and state an improvement percentage when the acquisition objective is improved performance and the end result will be higher system cost.

(1) DON'T state an improvement percentage for baseline comparison when cost benefit is the reason for the acquisition.

(2) DON'T use statistical significance at rationale for the stated improvement percentage.

*k. Quantitative criteria.* DO use quantitative criteria, which are preferred when possible. DON'T use qualitative criteria unless quantitative criteria cannot be developed or are not applicable.

*l. "Lessons learned" (recent experiences).* DO apply "lessons learned" from previous evaluations to avoid pitfalls. DON'T allow duplicate or overlapping criteria unless absolutely necessary (that is, a system should not be placed in double jeopardy for a single shortcoming).

## Section V
## Providing the Rationale

### 5–15. Characteristics

The rationale, by definition, provides justification for the criteria, not the issue, and an audit trail to the requirements specified in the MNS, ORD, FD, COEA, system specifications, and so forth. It states the reason for selecting a particular characteristic or capability and identifies by document and paragraphs the source of the information. In the case of derived criteria, the rationale will provide the basis and methodology used.Considering the operational nature of COIC, the rationale for the requirements are often as important as the requirement in establishing and justifying the criteria. The rationale should not be separated from the COIC since understanding the basis for a criterion is critical during its evaluation.

### 5–16. Providing the rationale-Questions to ask

*a. References.* Are appropriate source references included for all criteria? Is there one or more ORD (MNS/FD for IMA systems)paragraph(s) referenced for each criterion stated?

*b. Derived criteria.* Are the basis and methodology discussed for all "derived"criteria (for example, probability of kill incorporates probabilities of detection, identification, engagement, hit, and kill given a hit)?

*c. COEA relationship.* Is the relationship between the criteria and COEA results addressed where applicable (for example, the ORD requires improved survivability (over that of the baseline system) and the COEA identifies a minimum requirement for 20 percent more combat capable systems)?

### 5–17. Providing the rationale-DOs and DON'Ts

*a. Criteria justified.* DO provide a complete justification for each criterion

(1) DON'T justify the issue.

(2) DON'T inject new/additional criteria into the rationale.

*b. Criteria audit trail.* DO establish a complete audit trail by indicating the specific document and paragraph within the document from which the requirement was drawn. Every criterion must have a basis in the operational requirement document (ORD for material systems and MNS/FD for IMA systems). This does not mean that it must be a direct lift.

*c. Criteria to COEA linkage.* Do provide a defined relationship between COIC criteria and COEA measures of effectiveness/performance whenever possible such that the IOE can evaluate COEA impact should there be shortfalls against COIC criteria.

*d. Critical mission justification.* DO justify why a particular mission or use was selected when multiple missions or uses are possible.

## Section VI
## Establishing the Notes

### 5–18. Overview

Mandatory notes and any other required notes, explanations, or definitions will be included after the last issue set. They serve to: emphasize the purpose and scope of COIC in relation to the full set of OIC. Place T&E results related to COIC in the proper perspective, and discuss lengthy T&E conditions or definitions.

### 5–19. Mandatory Note #1

*a. The note.* Provide the following note modified to reflect appropriate characteristics applicable for the specific system (for example, if a maintenance ratio is included as a criterion, then RAM may not apply to this note): "Note #1. Criteria" "X", "Y" and "Z" are total system measures. As such, they inherently cover hardware, software, personnel, doctrine, organization, and training. System individual characteristics of operational capability, survivability, RAM, organization, doctrine, tactics, logistics support, training, and MANPRINT (which includes the domains of manpower, personnel, training, human factors engineering, system safety, health hazards, and soldier survivability) related to these criteria will be provided by the independent operational evaluator in the TEP."

*b. Discussion of Note #1.*

(1) This note serves to emphasize to the COIC developer that total system measures are preferred.

(2) This note acknowledges that some criteria will not be total system measures, and identifies for the evaluator and reviewers those designated criteria ("X", "Y" and "Z") which are in fact total system measures.

(3) This note commits to addressing the more detailed system individual characteristics in the operational TEP.

### 5–20. Mandatory Note #2

*a. The note.* Provide the following note: "Note #2. Criteria are not provided as automatic (default) pass/fail measures. Rather they represent estimates of performance for which a breach would require a careful senior level management reassessment of cost effectiveness and program options during the program milestone decision review."

*b. Discussion of Note #2.*

(1) This note emphasizes that criteria are not "automatic"pass/fail measures.

(2) This note highlights the fact that breach of criteria constitutes a "show stopper" until convincing evidence can be presented to decision makers that the program should proceed in spite of the shortfall. Convincing evidence might include a revised risk assessment, specific observations and data from operational tests, baseline comparison data, COEA updates, or a revised threat assessment.

### 5–21. Mandatory Note #3

*a. The note.* Provide the following note for those COIC applicable to the MS I TEMP: "Note #3. These COIC are derived from the user's initial requirements for the system. These COIC will be updated prior to MS II based on the revised ORD/FD and final updated COEA."

*b. Discussion of Note #3.*

(1) This note is applicable only for COIC in support of the TEMP approved in advance of MS I.

(2) This note highlights the fact that COIC for the MS I TEMP may contain "soft" criteria, which will be updated as the system matures.

### 5–22. System peculiar notes

System peculiar notes are that necessary for understanding.They will commonly focus on definitions or lengthy test and evaluation conditions.

## Section VII
## COIC Checklist and Development Sample

### 5–23. Checklist for COIC

Figure 5-11 is a sample COIC checklist for use by COIC preparers and staffers at all levels. The checklist covers both content and processing events. Materiel and IMA systems are covered.

### 5–24. COIC development sample

Figure 5-12 is a COIC development sample. There are two parts-the situation and the solution. The situation provides applicable operational requirements information, program status, similar system recent experience, and acquisition strategy. The solution provides a resultant set of COIC for the situation described applying the guidelines presented in this pamphlet. There are other possible solutions but note that this approach has been successful.

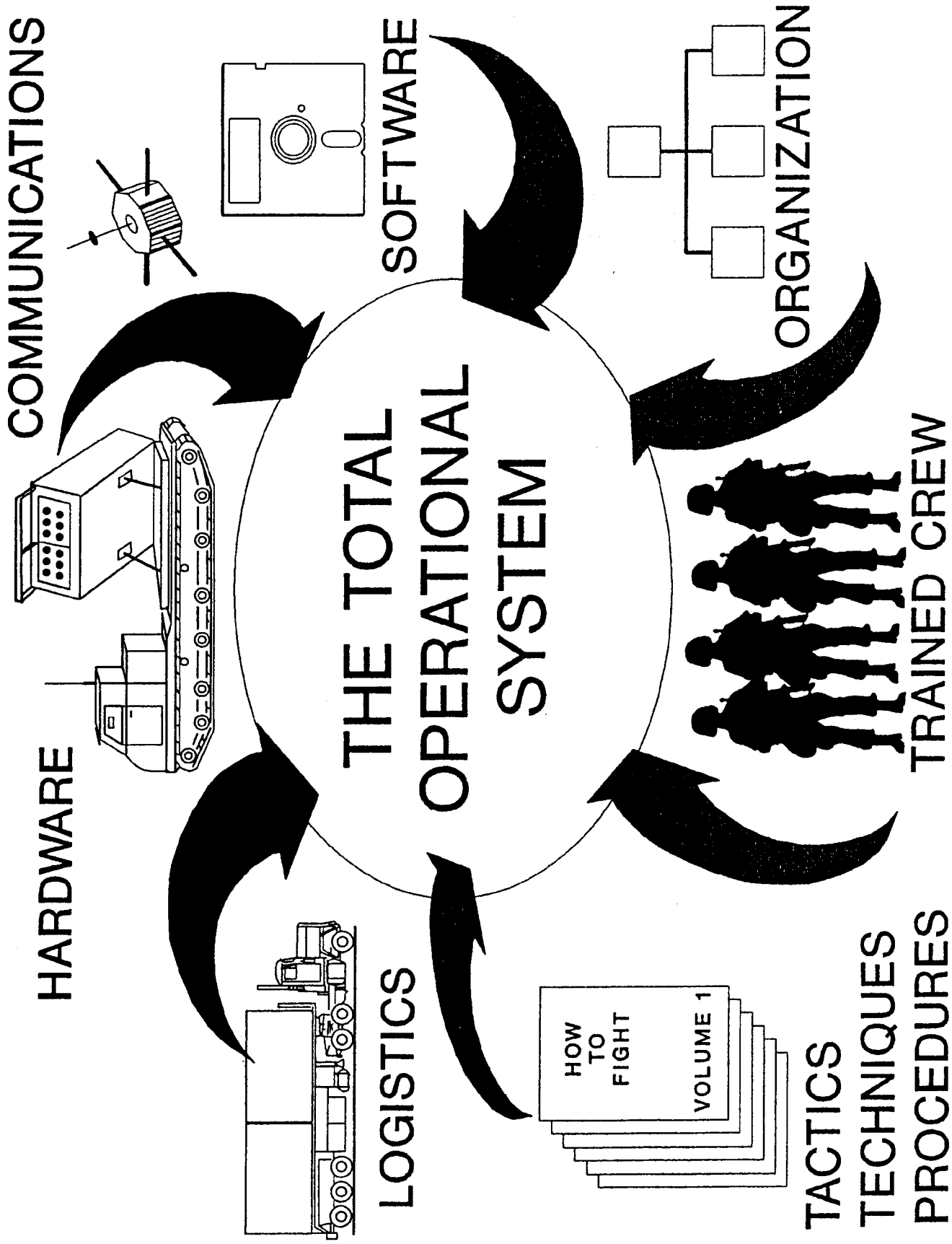


**Figure 5-1. The total operational system**

Critical Operational Issues and Criteria
for
the "X" System (or "Y" Modification to the "X" System)
for Test and Evaluation Master Plan Supporting
Milestone "Z" (I/II/III) or Modification Approval Package

1.0 Issue: (See Section II)

1.1 Scope: (See Section III)

1.2 Criteria: (See Section IV)

1.2.1

1.2.2 A dendritic numbering system is used to standardize format.

1.2.n

1.3 Rationale: (See Section V)

1.3.1

1.3.2 Rationale subparagraphs correspond to those of each criteria.

1.3.n

Subsequent issue sets are numbered 2 through n. NOTE: The total is commonly six (6) or less, with three (3) being the norm.

Note 1: (mandatory) (See Section VI)

Note 2: (mandatory) (See Section VI)

Note 3: (mandatory for MS I TEMP COIC) (See Section VI)

Notes 4 through n (system peculiar - see Section VI)

Figure 5-2. CIOC format

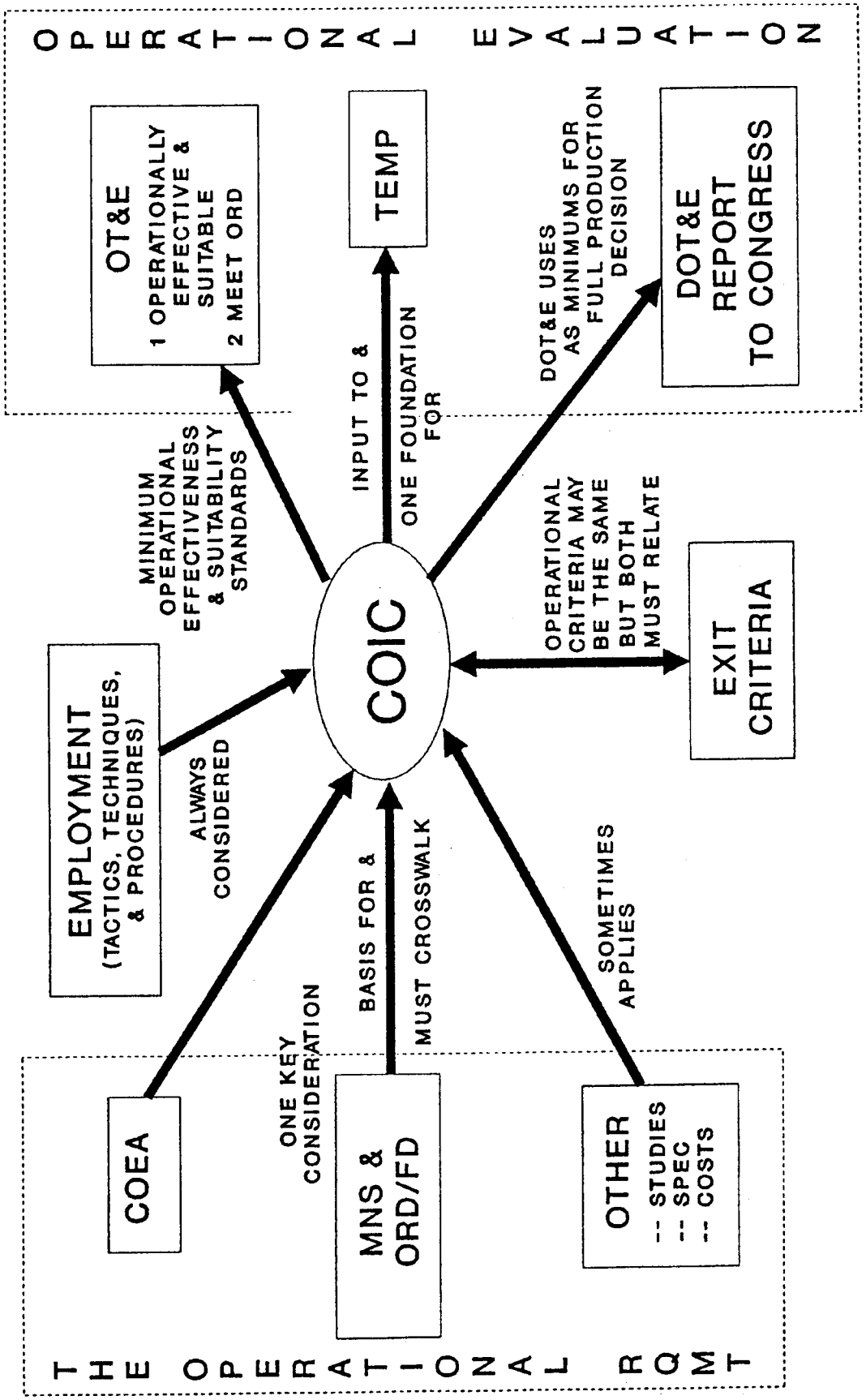


**Figure 5-3. CIOC relationships**

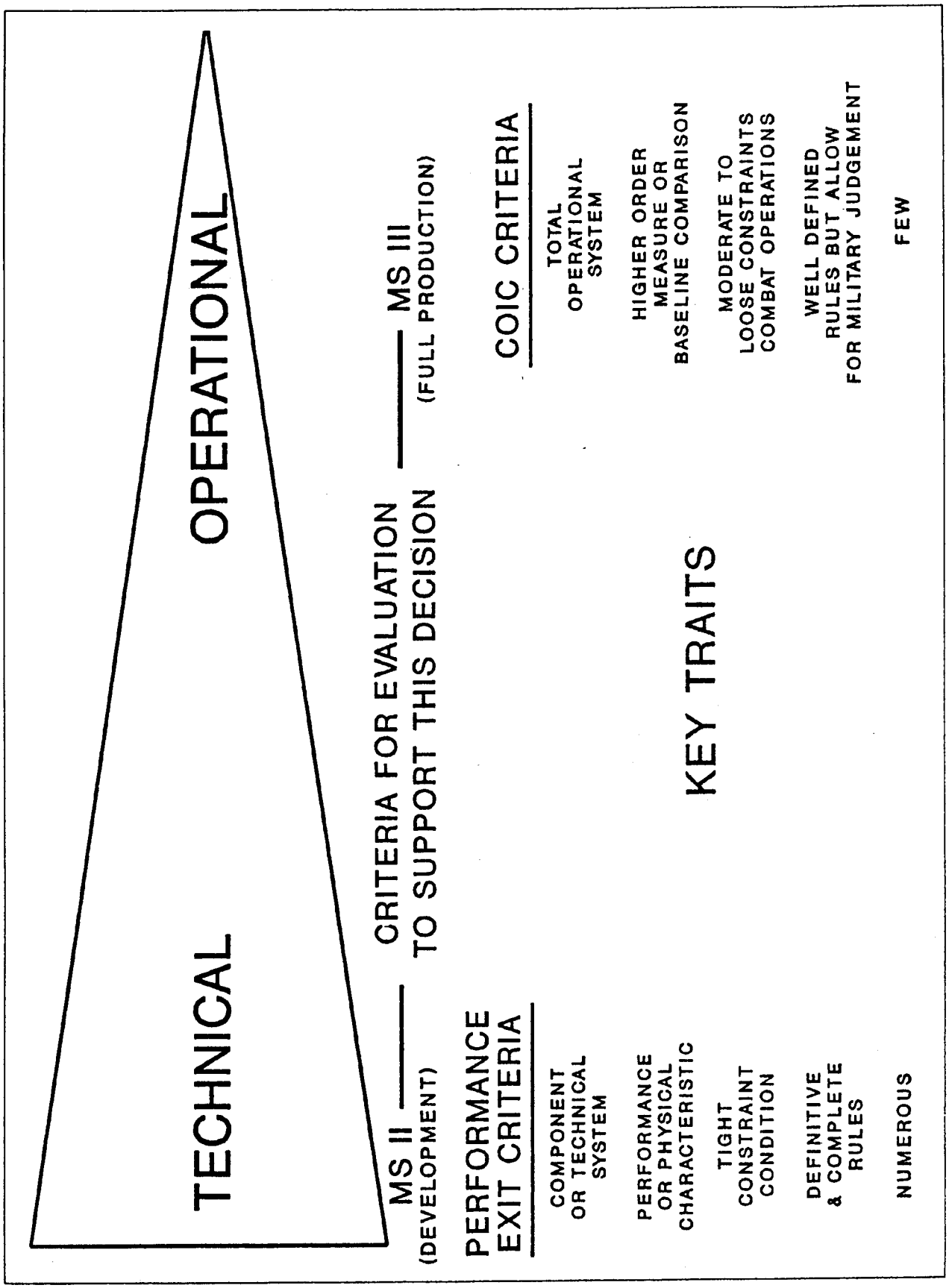


**Figure 5-4. COIC vs performance exit criteria**

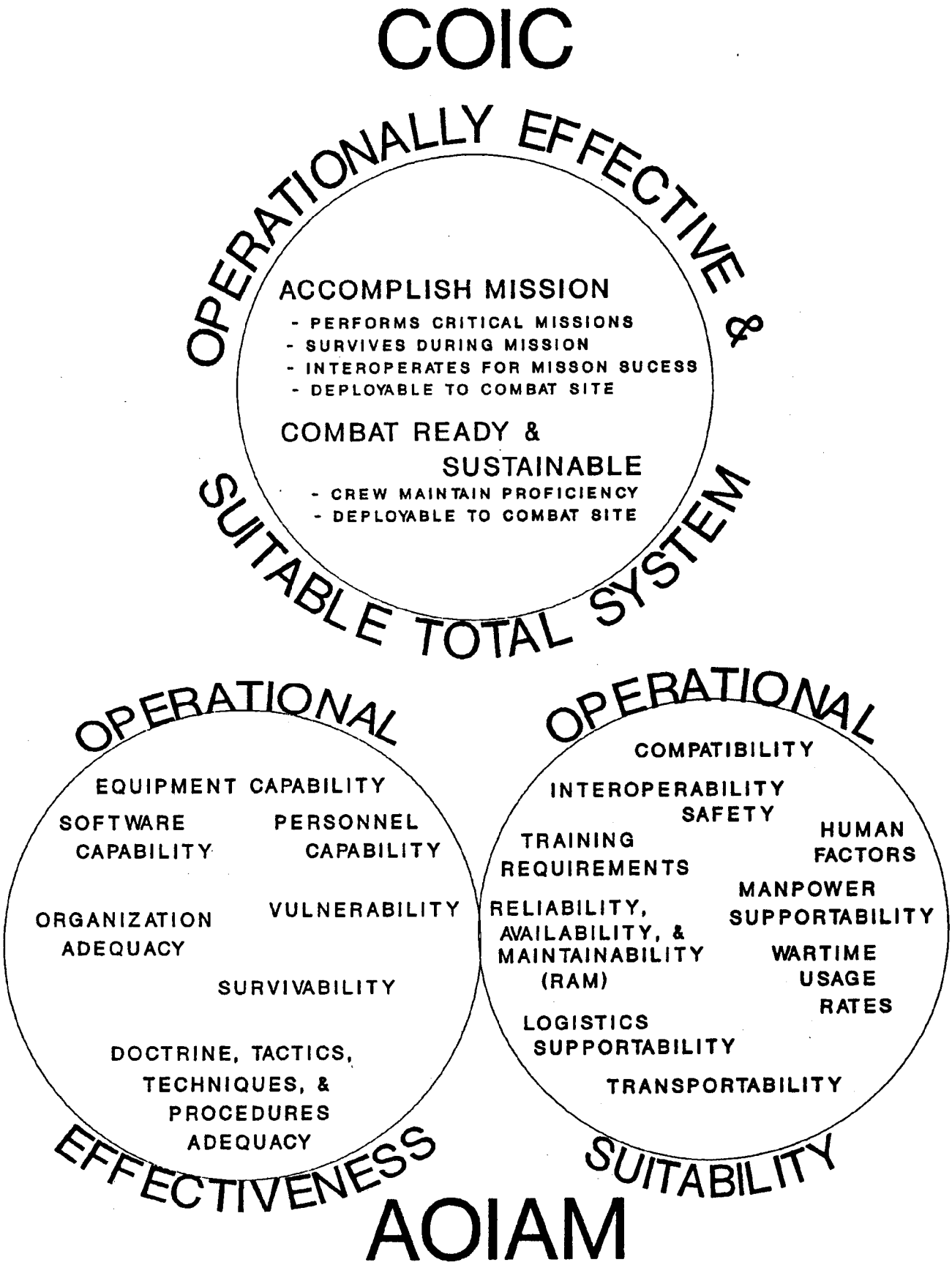


**Figure 5-5. CIOC - AOIAM relationship I**

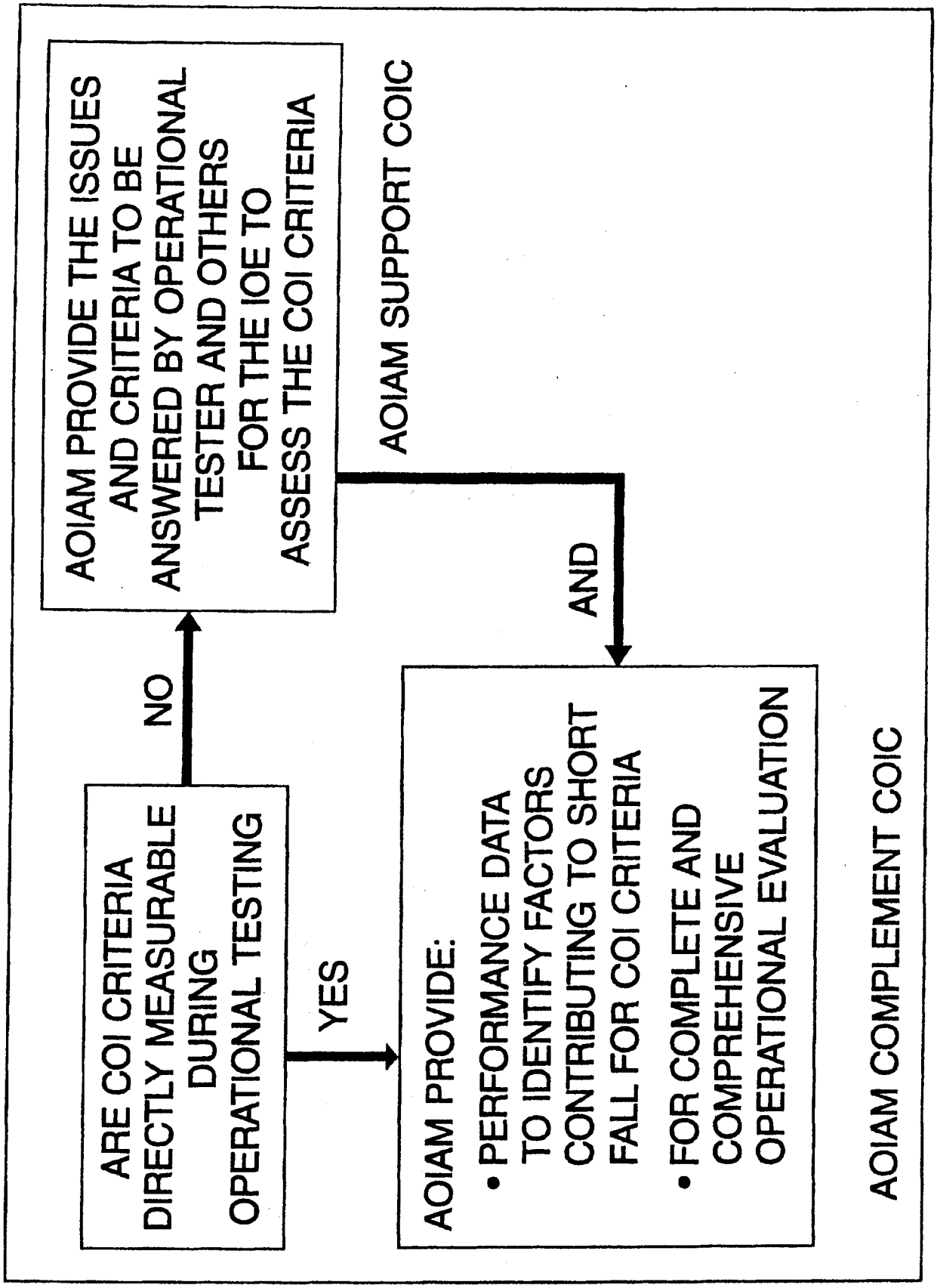


**Figure 5-6. COIC - AOIAM relationship II**

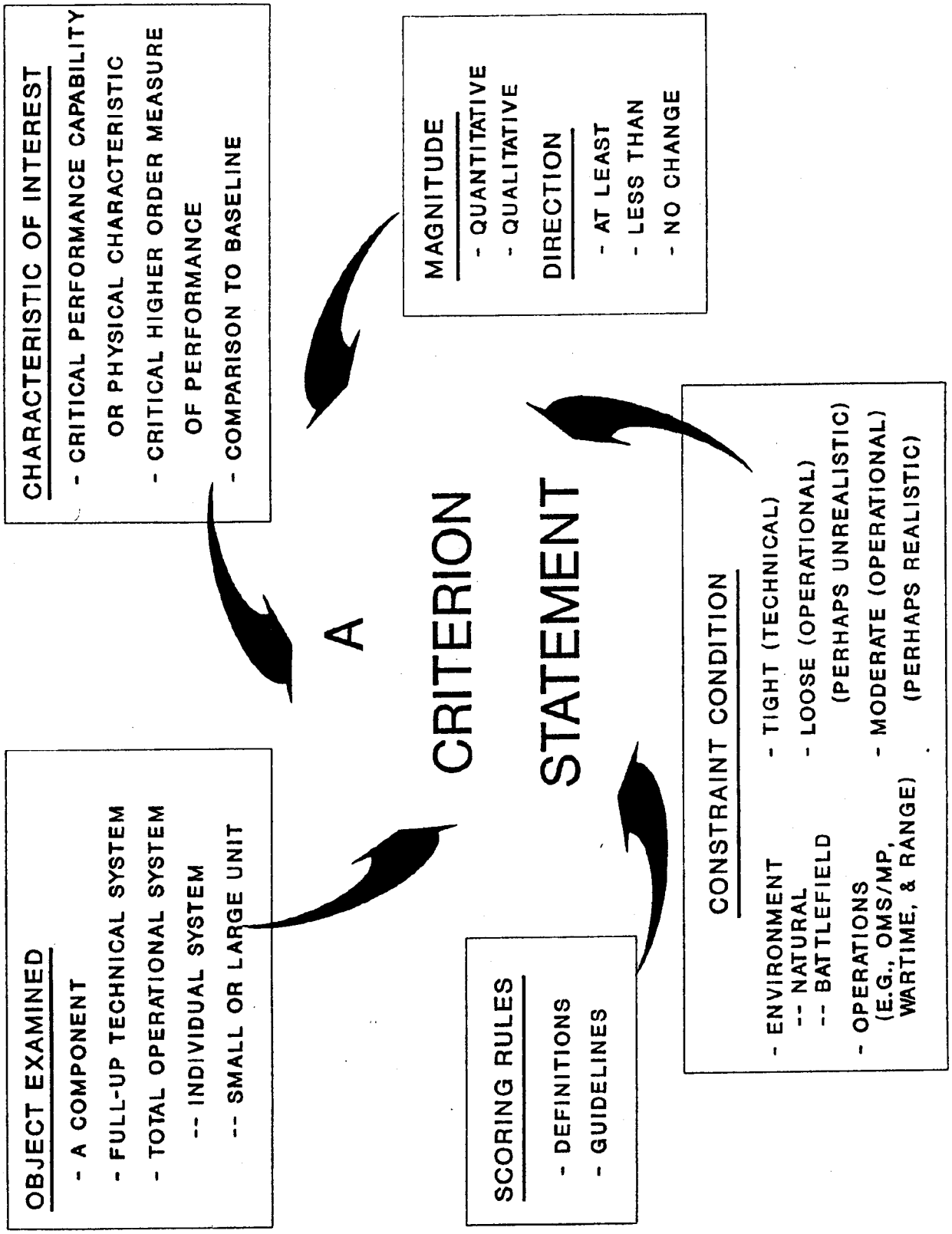


**Figure 5-7. A criterion statement**

| SITUATION | MEASURE |
| --- | --- |
| AUTOMATED INFORMATION SYSTEM | -QUALITY & TIMELINESS OF CRITICAL FUNCTION(S) ACCEPTABLE TO USER |
| NETTED COMMUNICATIONS SYSTEM | -PERCENT PRIORITY COMMUNICATIONS ACCEPTABLY PASSED BY THE NET |
| SYSTEM SURVIVABILITY IMPROVEMENT WITH RAM TRADE-OFF | -PERCENT MORE COMBAT CAPABLE SYSTEMS AVAILABLE DURING A PERIOD OF COMBAT OPERATIONS |
| AIR DEFENSE WEAPON SYSTEM | -PERCENT OF THREAT A/C KILLED<br>-PERCENT FRIENDLY A/C ENGAGED |
| TRUCK SYSTEM | -SAFE TRANSPORT PAYLOAD IAW OMS/MP<br>-PROBABILITY OF SAFE LOAD/UNLOAD |
| SURVIVABILITY IMPROVEMENT | -PERCENT OF TARGETS ENGAGED/KILLED<br>-PERCENT OF ENGAGEMENTS BY THREAT |

Figure 5-8. Characteristics of interest-mission accomplishment examples

| SITUATION | MEASURE |
| --- | --- |
| NEW WARHEAD FOR EXISTING "WOODEN" ROUND | -NO SUSTAINMENT ISSUE |
| SUSTAINMENT TRAINING (NORMAL CONSIDERATION) | -ABILITY TO DO CREW DRILLS AND TRAINING IN GARRISON<br>OR<br>-OPERATORS/CREWS PERFORM OPERATIONS ACCEPTABLY WITH ONLY EXPORTABLE TRAINING |
| SUSTAINMENT LOGISTICS (NORMAL CONSIDERATIONS) | -SUSTAIN THE SYSTEM FOR X DAYS COMBAT OPERATIONS<br>OR<br>-PERCENT OF COMBAT CAPABLE SYSTEMS AFTER REASONABLE DURATION |

**Figure 5-9. Characteristics of interest -sustainment examples**

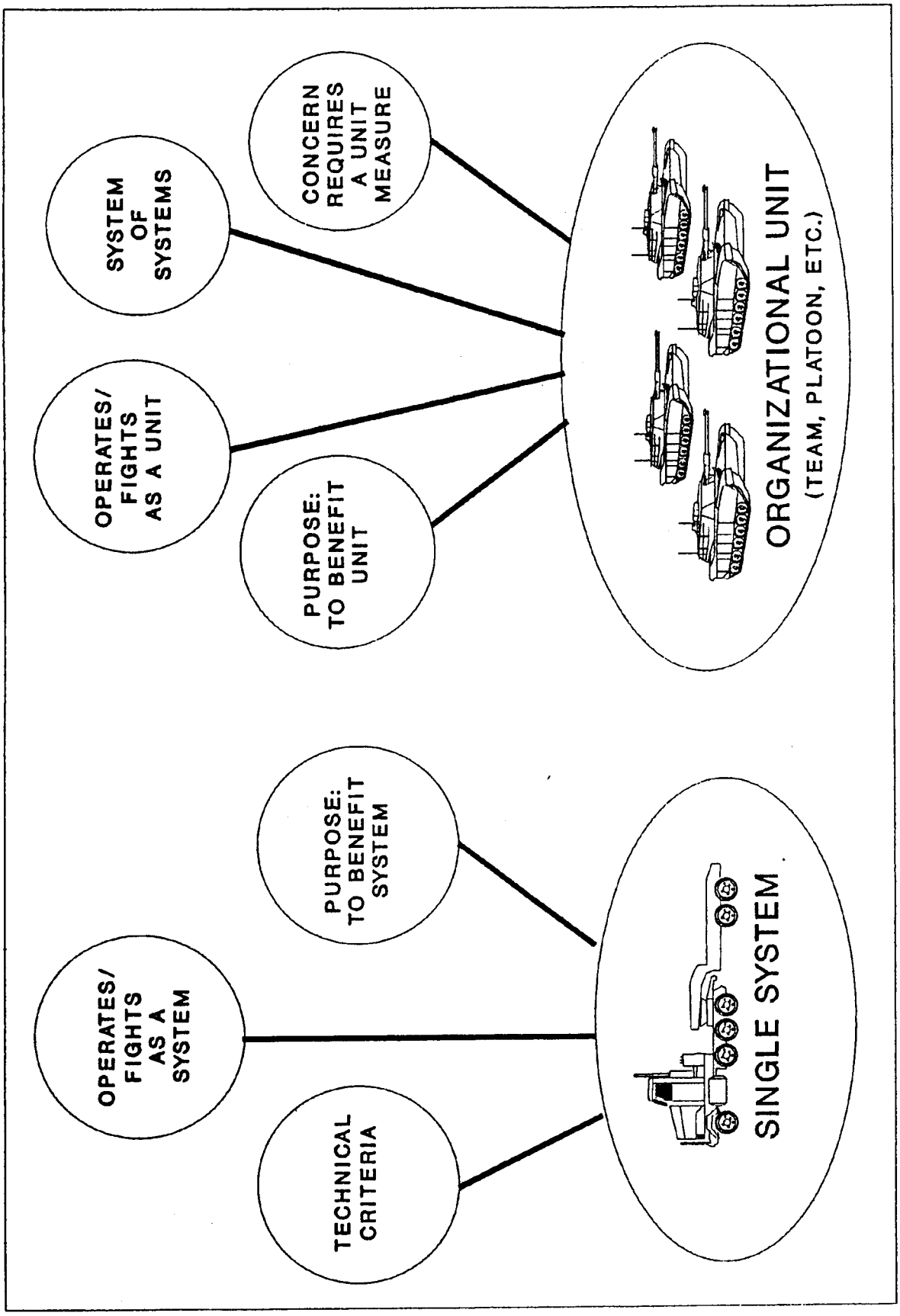


**Figure 5-10. Which total operational system?**

Checklist for
Critical Operational Issues and Criteria (COIC)

NOTE: This checklist is provided to be followed as a guideline for use by all involved in the preparation, review, and approval of critical operational issues and criteria. All questions are intended to be answered "yes." If a question is answered "no," the applicable element should be reworked or justification provided. Approved COIC are included in the Test and Evaluation Master Plan.

1. COIC format and content.

a. Heading.

(1) Does it state "Critical Operational Issues and Criteria for"?

(2) Does it contain the system name?

(3) Does it identify the applicable TEMP?

b. Format.

(1) Is there a scope, criteria, and rationale paragraph for each issue?

(2) Does paragraph numbering follow the dendritic format of X.0 - Issue, X.1 - Scope, X.2 - Criteria, and X.3 - Rationale? (X is the issue number, for example, 1, 2, etc.)

(3) Does each criterion have an associated rationale subparagraph?

(4) Are the mandatory notes and other system peculiar notes included?

c. Content - Issues.

(1) Do the issues reflect only those few key operational concerns and standards for determining the system's readiness at the MS III decision review?

Figure 5-11. Checklist for CIOC

(2) Are the issues in the form of questions to be answered "yes" or "no" (that is, no issue should be investigative in nature - "How well" or "What is")?

(3) Are the issues based on the MNS?

(4) Are the issues operationally realistic and do they ask if/whether a task/function or mission can be achieved?

(5) Do the issues focus on the total operational system and not its component parts?

(6) Do the issues focus the decision? (They should not over generalize, for example, "Is system "X" operationally effective/sustainable in an operational environment?)

(7) Are issue statements free of criteria (for example, performance standards)?

(8) Has overlapping coverage between issues been avoided to the degree possible and appropriate?

d. Content - Scope.

(1) Does the scope identify the operational capabilities to be examined?

(2) Are terms peculiar to the system and evaluation of each issue defined?

(3) Are the tactical context and scenario(s) applicable to the evaluation of each issue identified?

(4) Are key system deployment and organizational structure factors applicable to the evaluation identified?

(5) Are applicable approved threat documents referenced?

(6) Are applicable crew and maintainers identified?

(7) Are key natural and battlefield environments identified?

(8) Have requirements for technical testing and modeling analysis been identified?

**Figure 5-11. (PAGE 2). Sample Checklist for COIC-Continued.**

(9) Is the scope free of criteria and requirements statements?

(10) Is the scope free of requirements for statistical confidence levels applicable to the criteria?

e. Content - Criteria.

(1) Is there at least one criterion for each critical operational issue?

(2) Is each criterion a "show stopper" for the MS III decision?

(3) Do the criteria represent a performance threshold (for example, quicker delivery of mission/operational orders (MS I TEMP) or delivery of mission/operational orders within one hour on the average after initiation of operations (MS II TEMP))?

(4) Are all criteria based on or derived from requirements documented in the MNS, ROC/ORD, FD, COEA, etc., and do they reflect the critical operational needs and constraints? (The criteria do not have to be a direct lift but must be auditable to an approved source document.)

(5) Do the criteria reflect a level of system maturity appropriate to the milestone TEMP?

(6) Has overlapping coverage among criteria been avoided to preclude multiple failure for a single shortfall?

(7) Are all criteria which are not total system measures (the preference) fully justifiable?

(8) Do criteria reflect only essential operational requirements (not desired capabilities)?

(9) Wherever possible, are higher order measures of performance (for example, probability of kill, probability of successful communications, etc.) stated rather than those of contributing components (for example, probabilities for detecting, engaging, hitting, and killing a target; probabilities for connectivity message accuracy, RAM, etc.)?

(10) Do the criteria avoid the use of force exchange ratio, loss exchange ratio, or similar operational effectiveness measures more appropriate for COEA/modeling?

**Figure 5-11. (PAGE 3). Sample Checklist for COIC-Continued.**

(11) Is a baseline comparison used only when a specific performance measure cannot be derived, when directed by higher authority, or to reduce the chance of bias during test and evaluation?

(12) If a baseline comparison is used, and performance improvement is the objective, is an improvement percentage specified?

(13) Are qualitative criteria measurable?

(14) Are all constraint conditions applicable to evaluation of each criteria stated and consistent with the scope (for example, MOPP-IV, electronic warfare, etc.)? (Note: They may also be included in the system peculiar notes.)

(15) Are all definitions applicable to evaluation of each criteria stated and consistent with the scope (for example, firepower kill, payload, etc.)? (Note: They may also be included in the system peculiar notes.)

(16) Have potential ambiguities which could result in erroneous T&E been avoided?

(17) Are probabilistic criteria used when man-machine interface dependent (for example, X% of attempts, median time, etc.)?

(18) Is the appropriate level system (that is, individual system, team, platoon, etc.) addressed by each criteria? (Criteria must be the lowest level appropriate for the system - an individual system is preferred; an organizational element should be used when the system's primary mission contributes to unit performance.)

(20) Are all measures of performance critical to the MS III decision covered? (No key criteria should be excluded because the data source was other than operational test or problems collecting needed data were anticipated.)

(21) Are criteria free of confidence levels?

f. Content - Rationale.

(1) Do the rationale statements justify each criteria?

Figure 5-11. (PAGE 4). Sample Checklist for COIC-Continued.

(2) Are reasons stated for selecting the characteristic/capability used?

(3) Are the ORD (MNS and FD for AIS), and/or other source document paragraph references identified?

(4) Are complete references provided for criteria derived by combining characteristics or capabilities?

(5) Is an audit trail to the COEA provided?

g. Content - Notes.

(1) Are mandatory notes #1 and #2 present?

(2) Have total system criteria been identified in mandatory note #1?

(3) Is mandatory note #3 present for COIC in support of the MS I TEMP?

(4) Are notes peculiar to the system, as referenced in the body of the COIC, provided?

**2. COIC review and approval - ACATs I/II materiel, theater/ tactical MAISRC, OSD T&E oversight, and other systems requiring approval by HQDA, DCSOPS-FD.**

a. For TRADOC, DCSCD approval:

(1) Is the ORD approved for materiel systems and the FD approved for AIS?

(2) Are the following coordinations complete:

(a) Proponent - coordination with MATDEV and OPTEC OEC?

(b) HQ, TRADOC - coordination within HQ, TRADOC and with MATDEV, OPTEC, and the DAMO-FDR A/O?

(3) Have all concurred with the COIC? (If "NO," strong rationale must be provided for TRADOC, DCSCD consideration.)

b. For ADCSOPS-FD approval:

(1) Are the COIC TRADOC, DCSCD approved?

**Figure 5-11. (PAGE 5). Sample Checklist for COIC-Continued.**

(2) Has the CG, OPTEC concurred with the COIC?

(3) If the CG, OPTEC nonconcurred and TRADOC, DCSCD disagrees with the nonconcurrence, has a joint CG, OPTEC/TRADOC, DCSCD/ADCSOPS-FD forum been set for resolution?

(4) Is the COIC-ORD (COIC-MNS/FD) crosswalk "Horse Blanket" ready for the DA decision briefing?

(5) Have the appropriate DA staff elements concurred with the COIC?

(6) Has the appropriate DCSOPS pre-brief been accomplished?

**3. COIC review and approval - ACATs III/IV materiel and theater/tactical non-MAISRC systems not on the OSD T&E oversight list.**

a. Is the ORD for materiel systems and the MNS/FD for AIS approved?

b. Has the COIC been coordinated with the MATDEV, OEC, CASCOM, and HQ, TRADOC?

c. Have all concurred with the COIC? (If "NO," strong rationale must be provided for TRADOC Proponent/DCSCD consideration.)

**4. COIC review and approval - S/SB IMA systems.**

a. Are the MNS and FD approved?

b. Has the COIC been coordinated with and concurred in by OPTEC, PM, and appropriate DA staff elements?

c. Is the FP COIC-MNS/FD crosswalk briefing ready for presentation to VDISC4 for Classes II through IV IMA systems?

**Figure 5-11. (PAGE 6). Sample Checklist for COIC-Continued.**

**COIC DEVELOPMENT SAMPLE**

THE SITUATION:

System - Communications system including radio set (component of the user system) and net control station (NCS) with generator, vehicle, and crew.

Need - High speed, secure and nonsecure, jam resistant data communications for automated systems.

Mission - Deploy to theater of operations, set up, initialize net, provide continuous communications support, and relocate components (frequently) to survive.

Deployment - Light forces divisions through battalion command posts and key operational units.

Employment -
- Combined and joint operations control
- Division systems control manages net
- NCS support (dedicated team with vehicle)
- Radio set support (standard logistics)

Acquisition Strategy -
- Developmental system (NCS and radio set)
- Uses standard truck, shelter, and generator
- ORD and MS II approaches approved
- MS IIIA (LRIP based on technical and user tests)
- MS III (full production based on technical and IOT)

ORD Requirements Emphasis -
- Connectivity between users (communications link exists)
- Continuity of operations during movement and maintenance
- NCS set up, tear down, and net initialization times
- Aerial deployment for NCS (radio certified with user)
- Allied and combined operations interoperability
- RAM for NCS and radio set

ORD Requirements -
1. User connectivity 90% of the time in a benign environment.
2. User connectivity 80% of the time in an electronic warfare (EW) environment.
3. User throughput (messages/hour) identified by the user.

Figure 5-12. COIC development sample

4. User speed of service requirement identified by the user (not more than a factor of 3 degradation in an EW environment for priority messages).

5. Continuity of net operations (NCS/radios) during movement and maintenance.

6. NCS roll-on/off transportability via C-130.

7. NCS certified for air drop and Low Altitude Parachute Extraction System (LAPES) deployment.

8. NCS set up (first radio in net) within 45 minutes.

9. NCS tear down and depart site within 45 minutes.

10. High Altitude Electromagnetic Pulse (HAEMP) and Nuclear, Biological, and Chemical Contamination (NBCC) survivable.

11. Employed in hot, basic, and cold climates.

12. Communications interface with allied and other service communications systems used with automated control systems.

13. School NCS training will include training device (one trainer station and four (4) student stations); unit sustainment training will be supported by an exportable training package.

14. Reliability, availability, and maintainability (RAM): NCS $A_o$ .9, Mean Time Between Operational Mission Failure (MTBOMF) 300HR, and Maintenance Ratio (MR) 0.002; Radio Set $A_o$ .95, MTBOMF 300HR, and MR 0.0005

Specification Requirement - 90% throughput success and 90% speed of service success given user connectivity exists.

Operational Mode Summary/Mission Profile (OMS/MP) - NCS set up within 45 minutes, operate for 2 hours, tear down within 45 minutes, movement 1 hour, 24 hour/day operations; radio set IAW user system OMS/MP.

Approved COI for Another Communications System -

- Three Issues -- Does/Can it
  - -- Provide secure voice and data communications which meets the user's need.
  - -- Deploy from garrison to field and operate IAW OMS/MP.
  - -- System with logistics sustain combat operations.
- Key criteria --
  - -- Probability of a message being sent and received in benign and EW environments.
  - -- Movement to field site in a single lift.
  - -- Set up and tear down times.
  - -- Sustained combat operations for 30 days.

Figure 5-12. (PAGE 2). COIC development sample--Continued.

Other Considerations -

- Technical test to verify technical characteristics.
- DIA approved threat package and scenario to be used in the initial operational test (IOT).
- IOT to test total operational system.
- Doctrine and Organization Test Support Package (TSP) to be used for employment in the IOT.
- COIC guidance: Sustainment COIC for a control system should address training maintaining proficiency in the unit and logistics sustaining combat operations for a period of time.
- Approved COIC for Another System Included:

**Figure 5-12. (PAGE 3). COIC development sample--Continued.**

**A SOLUTION:**

Critical Operational Issues and Criteria (COIC)
for the AN/GRC-986(V) Communications System
for Test and Evaluation Master Plan (TEMP) Supporting
Milestone II

1.0 Issue: Does the AN/GRC-986(V) system provide high speed, secure and nonsecure, jam resistant data communications for light forces automated control systems?

1.1 Scope: This issue examines the capability of the AN/GRC-986(V) to provide high speed, secure and nonsecure, jam resistant communications support for light forces, to include combined and joint operations. A division slice will be played with radios for allies and other services control systems in a net. Communications measure of performance to be examined will be percentage of message traffic passed. The AN/GRC-986(V) will be operated and maintained by qualified soldiers in accordance with the Operational Mode Summary/Mission Profile (OMS/MP). Continuity of operations during movement and maintenance will occur as a normal part of operations. Employment will be in accordance with the Doctrinal and Organizational Test Support Package (TSP). MOPP IV level operations will be simulated.

1.2 Criteria.

1.2.1 The AN/GRC-986(V) will pass at least 73% of the user required priority message traffic to the correct addressee within the user specified speed of service (SOS) (see note 3) in a benign environment, and at least 65% of priority messages with no more than a factor of 3 degradation in SOS in a threat EW environment.

1.2.2 Given compatible automated control systems, the AN/GRC-986(V) will interface with allied and other service systems (see note 4 for systems) to exchange data.

1.3 Rationale. The AN/GRC-986(V) mission effectiveness is its capability to deliver information to the correct addressee in time to take necessary action. During combined and joint operations, other services or allies are part of the mission and all must exchange required data.

Figure 5-12. (PAGE 4). COIC development sample--Continued.

1.3.1 Criterion 1.2.1 was derived from ORD requirements paragraphs 1, 2, 3, and 4 (connectivity in benign and EW environments, throughput, and SOS) and specification requirements for 90% throughput and 90% SOS. Benign percentage = .9 X .9 X .9 X 100 = 73%. EW percentage = .8 X .9 X .9 X 100 = .65.

1.3.2 Criterion 1.2.2 comes from ORD requirement paragraph 12.

2.0 Issue: Can the AN/GRC-986(V) be deployed from garrison to a field site and operate in accordance with the OMS/MP?

2.1 Scope: This issue examines the deployability of the AN/GRC-986(V) as a total system, that is, shelter/truck, mounted radio set, and NCS with organic generator. Specific modes/ techniques of deployability addressed will be roll-on/roll-off and aerial delivery via Low Velocity Air Drop (LVAD) and LAPES from C-130 aircraft. The crew will be deployed by separate aircraft. Additionally, data will be collected in benign and NBC (MOPP IV) environments in the time required to prepare the system (set up) for operation following crew/equipment link-up and/or arrival at the operations site, and to prepare the system (tear down) for survivability moves.

2.2 Criteria:

2.2.1 The AN/GRC-986(V) net control station must be certified for the following transport and deployment methods:

a. Roll-on and roll-off transport by C-130.

b. LVAD (air drop) and LAPES delivery.

2.2.2 The NCS crew must set up and have the first radio in the net within 45 minutes 90% of the time (time starts upon arrival on site). When dressed in MOPP IV, 60 minutes is allowed.

2.2.3 The NCS crew will tear down and depart site with median time less than 45 minutes after receipt of the move order. A median time of 60 minutes is allowed when dressed in MOPP IV.

2.3 Rationale: While the AN/GRC-986(V) NCS will be transported via all modes, aerial deployability is most critical to light units. The NCS must be like deployable to the users it supports. The NCS must move to survive during combat.

Figure 5-12. (PAGE 5). COIC development sample--Continued.

2.3.1 Criterion 2.2.1 is derived from ORD paragraphs 6 and 7.

2.3.2 Criterion 2.2.2 comes from ORD requirement paragraph 8. Applying a 90 percent factor recognizes the possibility of shortfalls under operational conditions. Set up is considered more time sensitive than tear down. An allowance of 15 additional minutes is made for MOPP IV degradation.

2.3.3 Criterion 2.2.3 is based on ORD requirement paragraph 9, with similar considerations to those for criteria 2.2.2. Median time is considered realistic for tear down.

3.0 Issue: Can AN/GRC-986(V) equipped units achieve training proficiency in garrison and provide a wartime readiness capability for sustained combat operations?

3.1 Scope:

3.1.1 This issue examines sustainment training provided to NCS crews. The unit training device, training publications and literature, and methods of instruction included in the program of instruction will be addressed. Training adequacy will be examined in terms of operator proficiency in performing critical tasks required to effectively employ the AN/GRC-986(V) (the critical tasks and standards to be met will be identified in the training TSP). Questionnaires and structured interviews with the test participants, instructors, and test directorate personnel regarding the adequacy of training, the training device, training materials, and operator acceptability of training manuals in accordance with AR 310-3 will be conducted. Also addressed will be correctness, applicability, format, degree of detail, and ease of use of publications.

3.1.2 This issue also encompasses an evaluation of the maintenance concept, system support package (SSP), and PLL/ASL under operational conditions. To be examined are the dedicated NCS maintenance team, and logistics support hardware and software needed to support the system. Hardware includes tools and test equipment. Software includes technical manuals, repair parts and special tools listings, the maintenance allocation chart (MAC), and parts allocation tables. Operational conditions will include movement to enhance survivability.

**Figure 5-12. (PAGE 6). COIC development sample--Continued.**

3.2 Criteria:

3.2.1 The AN/GRC-986(V) NCS crews will be able to practice and perform crew drills in garrison. 95% of the representative soldiers must be capable of performing all critical tasks for their respective MOS to the assigned training standard.

3.2.2 The dedicated NCS maintenance teams (one per NCS), with allotted tools, test equipment, and repair parts, will sustain a division operation for a period of 30 days without negative impact on continuity of operations.

3.3 Rationale: Units will come to combat "as is;" therefore, they must maintain proficiency during peacetime and be capable of sustaining operations until the logistics system catches up.

3.3.1 Criterion 3.2.1 is based on ORD requirement paragraph 13, which plans for an exportable packet for sustainment training.

3.3.2 Criterion 3.2.2 is based on ORD requirement paragraph 14 and the support concept of providing a dedicated maintenance teams for the NCS. The 30-day sustainment factor is the minimum essential to allow the logistics system to catch up.

Note 1: Criteria are total system measures. As such, they inherently cover hardware, software, personnel, doctrine, organization, and training. System individual characteristics of operational capability, survivability, RAM, organization, doctrine, tactics, logistics support, training, and MANPRINT (which includes the domains of manpower, personnel, training, human factors engineering, system safety, health hazards, and soldier survivability) related to these criteria will be provided by the operational independent evaluator in the operational test and evaluation plan.

Note 2: Criteria are not provided as automatic (default) pass/fail measures. Rather, they represent estimates of performance for which a breach would require a careful senior level management reassessment of cost effectiveness and program options during the program milestone decision review.

**Figure 5-12. (PAGE 7). COIC development sample--Continued.**

Note 3: This note would contain a definition of user specified speed of service (SOS).

Note 4: This note would contain a listing of Allied and other service systems with which the AN/GRC-986(V) is required to be interoperable for data exchange.

**Figure 5-12. (PAGE 8). COIC development sample--Continued.**

# Appendix A
# References

## Section I
## Required Publications

**AR 25–3**
Army Life Cycle Management of Information Systems. (Cited in Paras 3-2 and 4-2.)

**AR 73–1**
Test and Evaluation Policy. (Cited in Paragraph 4-3.)

**DODI 5000.2**
Defense Acquisition Management Policies and Procedures. (Cited in paras 4-10 and 5-4.)

**DODD 8120.1**
Life-Cycle Management (LCM) of Automated Information Systems (AISs). (Cited in Paragraph 5-4.)

**DODI 8120.2**
Automated Information System (AIS) Life-Cycle Management (LCM) Process, Review, and Milestone Approval Procedures. (Cited in Paragraph 5-4.)

## Section II
## Related Publications

**AR 25–1**
The Army Information Resources Management Program

**AR 70–1**
Army Acquisition Policy

**AR 71–9**
Material Objectives and Requirements

**AR 381–11**
Threat Support to U.S. Army Force, Combat and Materiel Development.

**AR 700–127**
Integrated Logistics Support

**DA Pam 70–3**
Army Acquisition Procedures

**DODD 5000.1**
Defense Acquisition

**DOD 5000.2n**
Defense Acquisition Management-Documentation and Reports

## Section III
## Prescribed Forms
This section contains no entries.

## Section IV
## Referenced Forms

**DA Form 2028**
Recommended Changes to Publications and Blank Forms

## Glossary

### Section I
### Abbreviations

**A/O**
action officer

**AC**
assistant commandant

**ADCSOPS-FD**
Assistant Deputy Chief of Staff for Operations and Plans-Force Development

**AMC**
Army Materiel Command

**AR**
Army Regulation

**ASARC**
Army Systems Acquisition Review Council

**BMDO**
Ballistic Missile Defense Organization

**C3**
command, control and communications

**CDR**
commander

**CG**
commanding general

**CMDT**
commandant

**DA**
Department of the Army

**DAB**
Defense Acquisition Board

**DCSCD**
Deputy Chief of Staff for Combat Developments

**DCSINT**
Deputy Chief of Staff for Intelligence

**DCSOPS**
Deputy Chief of Staff for Operations and Plans

**DISC4**
Director of Information Systems for Command, Control, Communications and Computers

**DOD**
Department of Defense

**DODD**
Department of Defense Directive

**DODI**
Department of Defense Instruction

**DOT&E**
Director of Operational Test and Evaluation

**DUSA (OR)**
Deputy under Secretary of the Army (Operations Research)

**FDTE**
Force Development Test and Experimentation

**FOT&E**
Follow-on Operational Test and Evaluation

**FYTP**
Five-Year Test Program

**HQ**
headquarters

**HQDA**
Headquarters, Department of the Army

**IPR**
In-process Review

**LRIP**
Low-rate Initial Production

**MACOM**
Major Army Command

**MAISRC**
Major Automated Information System Review Council

**MANPRINT**
Manpower and Personnel Integration

**MS**
Milestone

**MS 0**
Milestone 0, concept studies approval

**MS I**
Milestone I, concept demonstration approval

**MS II**
Milestone II, development approval

**MS III**
Milestone III, production approval

**MS IV**
Milestone IV, major modification approval

**NDI**
non-developmental Item

**OSD**
Office of the Secretary of Defense

**OT**
operational test

**PEO**
Program Executive Officer

**PM**
Program/Project/Product Manager

**RAM**
reliability, availability and maintainability

**RFP**
request for proposal

**SARDA**
Secretary of the Army (Research, Development and Acquisition)

**STAR**
System Threat Assessment Report

**T&E**
test and evaluation

**TEMA**
Test and Evaluation Management Agency

**TEMP**
Test and Evaluation Master Plan

**TIWG**
Test Integration Working Group

**TSARC**
Test Schedule and Review Committee

**TRADOC**
U.S. Army Training and Doctrine Command

**VDISC4**
Vice Director of Information Systems for Command, Control, Communications and Computers

### Section II
### Terms

**Acquisition**
The process consisting of planning, designing, producing and distributing a weapon system/equipment.

**Acquisition category**
All materiel acquisition programs, excluding highly sensitive classified programs, are placed into one of four categories, which determine the level of milestone decision authority. Initial category designation takes place at Milestone I, concept demonstration approval. Additional details are available in Part 2, DOD 5000.2.

**Additional operational issues and associated measures(AOIAM)**
A comprehensive set of IOE concerns and measures to provide a complete system evaluation. AOIAM content includes operational issues with associated scope, criteria and rationale. AOIM may be answered by testing, survey, studies, modeling and simulation, or other analytiocal means. They may be diagnostic or investigative in nature(no associated criteria).

**Availability**
Measure of the degree to which an item is in an operable and committable to state at the start of a mission, when the mission is called at an unknown (random) point in time.

**Combat developer (CBTDEV)**
Command or agency that formulates doctrine, operational concepts, operational requirements, and organization. For the purposes of this pamphlet, the combat developer is any one within the MACOM assigned combat development responsibility for a given materiel system or theater/tactical AIS. Writes, coordinates, staffs for approval, approves (or approves and releases), and prepares, presents, and/or represents the COIC for the MACOM during the ORD-COIC crosswalk approval briefing.

**Cost and operational effectiveness analysis (COEA)**
A documented investigation of comparative effectiveness of alternative means of eliminating or reducing a force or mission deficiency against the defined threat and the costs of developing, producing, distributing and sustaining each alternative system in a military environment for a time preceding the combat application.

**Criteria (for COIC)**
Those measures of performance which, when achieved, signify that the issue has been satisfied for the supported milestone decision.

**Critical operational issues**
Those key operational concerns expressed as questions which, when answered completely and affirmatively signify that a system or materiel change is operationally ready to transition to full production.

**Critical operational issues and criteria**
Those decision maker key operational concerns with bottom line standards of performance, which if satisfied, signify the system is operationally ready to proceed into full production during the acquisition decision (Milestone III, or an engineering change proposal or modification work order authorization decision for modifications). COIC are prepared in sets, which include the issues and for each issue, a scope, appropriate criteria and rationale.

**Developmental system change**
A system change that either is a preplanned product improvement to achieve existing operational requirements or responds to revised operational requirements (ORD for materiel systems and MNS for IMA systems).

**Doctrine**
The fundamental principles by which the military force or elements guide their actions to support national objectives.

**Exit criteria**
Critical, program specific results that must be attained during the next acquisition phase, as documented in the Acquisition Decision Memorandum. Exit criteria can be viewed as gates through which a program must pass during that phase. They can include, for example, the requirement to achieve a specified level of performance in testing or conduct of a critical design review prior to committing funds for long lead item procurement, or demonstration of the adequacy of a new manufacturing process prior to entry into LRIP. Performance exit criteria are measures of technical and/or operational performance identified as exit criteria for a system.

**Functional proponent**
Army staff agency responsible for the subject area, in which IMA resources are used, including automation in support of the function performed. For the purpose of this pamphlet, the functional proponent is anyone in the HQDA staff element (for example, DCSLOG)or its staff agency (for example, Logistics Evaluation Agency)responsible for the given system, who writes, coordinates, staffs for approval, approves (or approves and releases), and prepares, presents and/or represents the COIC for the staff element during the ORD-COIC crosswalk approval briefing.

**Independent operational evaluator**
A command or agency independent of the materiel developer and the user that conducts operational evaluations of Army systems, normally OPTEC.

**Interoperability**
Ability of systems, units, or forces to provide services and to accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. Alternately, 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.

**Logistics supportability**
The ability to sustain a system's required level of performance and readiness in a combat environment in accordance with approved concepts, doctrine, materiel and personnel.

**Low rate initial production**
Specified quantities of new weapon systems which provide production configured or representative articles for operational test pursuant to 10 U.S.C. 2399, establish an initial production base for the system, and permit an orderly increase in the production rate for the system sufficient to lead to full rate production upon the successful completion of operational testing. LRIP also serves to reduce the Government's exposure to (risk of) large retrofit programs and costs subsequent to full rate production and deployment.

**Maintainability**
Ability of an item to be retained in or restored to a specified condition when maintenance is performed by personnel having specified skill levels and using prescribed procedures and resources at each prescribed level of maintenance and repair.

**Manpower and Personnel Integration (MANPRINT)**
The integration of manpower (personnel strength available or required), personnel (skill/skill level), training (to include training for sustained operations and training as an embedded capability of the system), human factors engineering, system safety and health hazard considerations into system development.

**Material developer (MATDEV)**
The command or agency responsible for research, development and production validation of a system (including the system for its wholesale level logistics support) which responds to HQDA approved materiel requirements. For the purpose of this pamphlet, MATDEV refers, individually or collectively, to the responsible PEO, PM or action office within the AMC subordinate developmental command.

**Material system**
An item, system, or all systems or materiel. This includes all required system support elements.

**Milestone**
A major decision point that separates discrete logical phases or an acquisition (for example, MS III (Production Approval)determines if the results of Engineering and Manufacturing Development (Phase II) warrant continuation and establishes a Production Baseline containing refined program cost, schedule, and performance objectives for a program approved for continuation).

**Mission performance**
Involves the primary and secondary operational functions of a system such as movement (to include set up/tear down), firepower, communications, detection, transportation and computation when used by typical personnel in a realistic operational environment.

**Nondevelopmental item (NDI)**
A generic term that covers material available from a variety of sources with little or no developmental effort by the Army. NDI items are normally selected from commercial sources, material developed and in use by other U.S. military sources, Government agencies or other countries.

**Operational test**
Any testing and experimentation conducted in realistic operational environments, with users that are representative of those expected to operate, maintain, and support the system when fielded or deployed.

**Personnel**
A term used to describe the characteristics of an individual soldier (skill/skill level).

**Probabilistic**
Relating to, or based on probability.

**Proponent**
For the purpose of this pamphlet, proponent refers to the TRADOC Center or School, the TRADOC System Manager assigned lead responsibility for the system; who writes, coordinates, staffs and prepares and presents the ORD-COIC crosswalk approval briefing.

**Rationale (for COIC)**
Justification for the COI criteria and an audit trail of their link to the operational requirement (ORD/Required Operational Capability and the COEA).

**Reliability**
The duration or probability of failure frees performance under stated conditions.

**Reliability, availability and maintainability (RAM)**
Includes the system's mission reliability, its availability in a wartime scenario and its maintainability in the operational environment. Operational RAM includes the effects of the hardware, support equipment, personnel, manuals and the impact of embedded software.

**Requirement**
A concise statement of minimum essential operational, technical, logistic, and cost information necessary to initiate full-scale development or procurement of a materiel system.

**Scope (for COIC)**
The operational capabilities, definitions and conditions which focus the COI and guide its evaluation.

**System**
All government and industry furnished hardware and software required performing a battlefield mission. It also refers to the integration of all hardware and software with trained personnel(operators, maintainers and other logistical supporters), and with any command, control and communications necessary to perform appropriate tasks and functions in support of the mission. Finally, the terms includes organizational, doctrinal and logistics concepts developed for its employment in the intended operational environment as documented in field and technical manuals. For COIC purposes, the system may be a single system, a system of systems, or an organizational unit.

**System change**
Materiel or IMA system design change to fix existing system deficiencies/shortcomings, provide more economical operation or support, fulfill existing operational requirements, or fulfill revised operational requirements. System changes may be a materiel system modification (still in production), a materiel system upgrade(out of production), or an IMA system software change package.

**Theater and tactical information system**
Systems that direct, coordinate and support deployable combat, combat support, and combat service support forces in their projection of combat power throughout the spectrum of combat (peace, transition to and from conflict, and conflict.) A theater and tactical information system is an item that a table of organization and equipment unit requires to perform its mission and functions.

## Section III
## Special Abbreviations and Terms

This publication uses the following abbreviations, brevity codes, and acronyms not contained in AR 310-50.

**ACAT**
Acquisition Category

**ADM**
Acquisition Decision Memorandum

**AIS**
Automated Information System

**AOA**
Abbreviated Operational Assessment

**AOIAM**
Additional Operational Issues and Associated Measures

**ASP**
Ammunition Supply Point

**CBTDEV**
Combat Developer

**CEP**
Concept Evaluation Program

**COEA**
Cost and Operational Effectiveness Analysis

**COI**
Critical Operational Issue

**COIC**
Critical Operational Issues and Criteria

**D&O**
Doctrinal and Organizational

**DCD**
Director of Combat Developments

**ECM**
Electronic Counter Measure

**ECP**
Engineering Change Proposal

**EOA**
Early Operational Assessment

**EUTE**
Early User Test and Evaluation

**FD**
Functional Description

**FDEV**
Force Development Evaluation

**FER**
Force Exchange Ratio

**FP**
Functional Proponent

**ILS**
Integrated Logistics Support

**IMA**
Information Mission Area

**IOE**
Independent Operational Evaluator

**IOT**
Independent Operational Test

**IOTE**
Initial Operational Test and Evaluation

**JWG**
Joint Working Group

**LER**
Loss Exchange Ratio

**MATDEV**
Material Developer

**MDR**
Milestone Decision Review

**MNS**
Mission Needs Statement

**MOE**
Measure of Effectiveness

**MOP**
Measure of Performance

**MOPP**
Mission Oriented Protective Posture

**MWO**
Modification Work Order

**NLT**
Non-developmental Item

**O&O**
Operational and Organizational

**OE**
Operational Evaluator

**OEC**
Operational Evaluation Command

**OIC**
Operational Issues and Criteria

**OMS/MP**
Operational Mode Summary/Mission Profile

**OPTEC**
Operational Test and Evaluation Command

**ORD**
Operational Requirements Document

**OT&E**
Operational Test and Evaluation

**OTP**
Outline Test Plan

**P3I**
Preplanned Product Improvement

**S/SB**
Strategic and Sustaining Base

**SI**
System Integrator

**SYSDEV**
System Developer

**T/T**
Theater and Tactical

**TEP**
Test and Evaluation Plan

**TEXCOM**
Test and Experimentation Command

**TRAC**
TRADOC Analysis Command

**TRASSO**
TRADOC System Staff Officer

**TRNGDEV**
Training Developer

**TSM**
TRADOC System Manager

**TSP**
Test Support Package

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