

MATERIEL REQUIREMENTS DOCUMENTS

1. Introduction:

a. A materiel solution will be considered only when non-materiel (DTLOS) answers cannot satisfy the identified need. Once a materiel solution is identified as the solution to a specific need, the combat developer initiates actions which (if successful) will lead to the fielding of a materiel system. Materiel Requirements Documents (MRDs) serve to document any

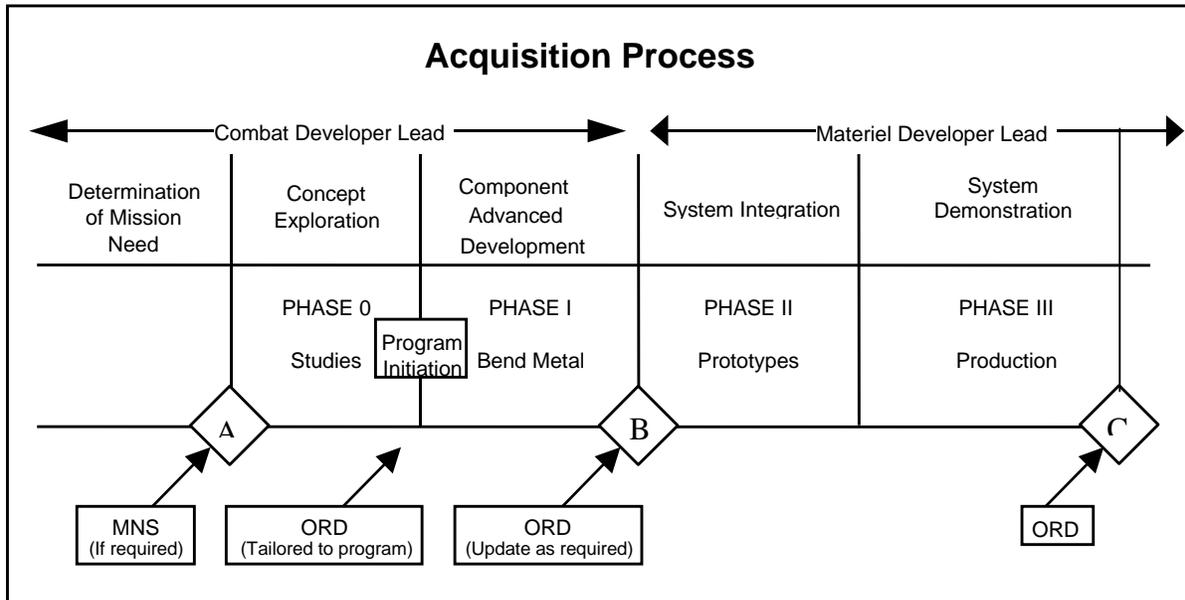


Figure 1-10. Acquisition process

warfighting materiel requirements, as stated by the CBTDEV. MRDs bridge the gap between a deficiency or need, and the contractual instruments (technical language) used to develop and acquire systems. The materiel acquisition process can be accelerated if MRDs are properly prepared and coordinated prior to approval. The ultimate goal is to ensure a timely, quality product for the soldier.

b. . The combat developer formally enters the acquisition process with the initiation of the MNS. If an MNS is not required (see para 3 b(2)), the initial document will be an ORD. The MNS represents a formal request to begin defining requirements and exploring different technology concepts. The ORD details the results of that process in the form of detailed requirements leading to technically achievable systems.

c. Figure 1-10 outlines the acquisition process. The point at which a program enters into the acquisition process and the extent the process is tailored depends on the thoroughness of the combat developer's pre-Milestone A activities and the maturity of the technology.

d. In pursuing a materiel system, the most cost-effective solution over the system's life cycle will have priority consideration. The following is the hierarchy of materiel alternatives:

(1) The procurement (including modification of) commercially available systems, the additional production (including modification of) already developed U.S. military systems or equipment, or allied systems or equipment.

(2) Cooperative development program with one or more allied nations.

(3) New joint Service development program.

(4) A new Service-unique development program. (The combat developer will ensure that the requirements in the MRD are stated so the materiel developer is not unnecessarily prevented from pursuing the most cost-effective solution available.)

2. Learning Objectives:

a. Identify the three types of MRDs what they contain, who writes them, and who approves them.

b. Describe how MRDs are developed and how they mature.

3. Types of Materiel Requirements Documents.

a. Capstone Requirement Document (CRD) (para A-1, pg 4-18).

(1) The CRD is a requirements management document that sets common standards and requirements across a function or mission area. It ensures any materiel fielded within that function or mission area is interoperable and maximizes the use of common resources. CRDs apply to programs which can be grouped into an integrated system-of-systems. The CRD cannot be used to justify procurement. Each individual system still requires its own ORD. The CRD identifies the system-of-systems requirements to define mission area(s), provides guidance for development of the independent system ORDs, and for ACAT I systems serves as a vehicle for the JROC to maintain oversight. The CRD is a living document and should be periodically reviewed and updated. CRDs are usually initiated by the JROC for ACAT I systems prior to MS I.

(2) The JROC may also provide guidance in the tasking letter. The JROC may task either a CINC or a Service component as lead agency for developing and presenting a CRD for approval. When the Army is assigned lead, the CG, TRADOC approves the CRD prior to submission to the JROC.

b. Mission Needs Statement (MNS) (para A-2, pg 4-19).

(1) The MNS documents deficiencies in current capabilities and identifies opportunities to provide new capabilities expressed in broad operational terms. The MNS shall identify and describe the mission deficiency and consequences of not overcoming the deficiency; discuss the results of the Needs Analysis—describe why non-materiel changes (i.e., doctrine,

tactics, etc.) are not adequate to correct the deficiency; identify potential materiel alternatives; and describe any key boundary conditions and operational environments that may impact satisfying the need, such as Information Operations.

(2) All requirements with ACAT I potential or requirements which represent a new Army mission require an MNS. For other than ACAT I or new Army mission, an MNS is not required. See Figure 2-1 for a description of acquisition categories.

Program Category	Primary Criteria (\$ = FY96 constant)
ACAT I	
ACAT ID	more than \$355M RDTE more than \$2.135B Proc
ACAT IC	more than \$355M RDTE more than \$2.135B Proc
ACAT IA	
ACAT IAM	excess of \$30M single year excess of \$120M total program excess of \$360M total life-cycle costs
ACAT IAC	excess of \$30M single year excess of \$120M total program excess of \$360M total life-cycle costs
ACAT II	
ACAT II	more than \$140M RDTE more than \$645M Proc
ACAT IIA	\$10 - 30M single year \$30 - 120M total program \$159 - 360M total life-cycle costs
ACAT III	
ACAT III	High visibility, special interest (includes AIS)
ACAT IV	
ACAT IV	All other acquisition programs (includes AIS)

Figure 2-1. Categories of acquisition programs

(3) All MNSs that document warfighting requirements will be approved by the CG, TRADOC and must be accompanied by documented DTLOMS determination analysis report (see Appendix E, pg 4-48) when forwarded for approval.

c. Operational Requirement Document (ORD) (para A-3, pg 4-21).

(1) An ORD is the definitive statement describing the operational capabilities needed to satisfy a mission need. It concisely states the minimum essential operational information needed for the acquisition of the materiel solution. The acquisition of the materiel solution must fully consider the impact on DTLOMS. An approved ORD will support an MS B decision. A MS B decision is required for program initiation and authority to enter a program into The System Development and Demonstration Phase. The ORD will be updated to support MS C as required by the MS B Acquisition Decision Memorandum (ADM).

(2) When the Pre-MS A studies have progressed to the point that the CBTDEV and the MATDEV agree there is sufficient information to support a program initiation decision, the CBTDEV will prepare a draft MNS. The MNS is drafted by the DOD members of the

ICT under the lead of the CBTDEV. The MNS will be subsequently used to develop the draft ORD after the MS A ADM has been published. CG, TRADOC is the approval authority for all ORDs.

(3) An ORD is required for all systems with the following exceptions:

- (a) Another Service has an approved document for the same requirement.
- (b) The item (except TADSS) is exempt from type classification (see AR 70-1).
- (c) The program is a modification or a P3I whose requirements are completely bounded by the thresholds and objectives existing in an approved document.
- (d) The requirement is non-warfighting (except TADSS).
- (e) Directed by HQDA.

(4) All ORDs will be approved by CG, TRADOC and will be accompanied by a documented Requirements Analysis (see Appendix E, pg 6-48) and System Training Plan (STRAP), when forwarded for approval (see Figure C-2, pg 6-34).

4. Writing MRDs.

a. General.

(1) The CBTDEV convenes the ICT to develop the draft MRD.

(2) The CBTDEV reconvenes the ICT to finalize the draft MRD and will include the principal members and agencies with unresolved issues from the initial staffing. All attempts will be made to incorporate comments and resolve differences prior to reconvening the ICT. (If there are no issues from the MRD staffing, reconvening the ICT to finalize the MRD may not be necessary.) If the ICT cannot resolve all of the issues, the system requirements can be reassessed, or the CMTD/CDR can forward the MRD to HQ TRADOC for approval with the issues detailed on the forwarding cover letter.

b. Writing the CRD (specific format is in para A-1, pg 6-18).

c. Writing the MNS—general guidelines (specific format is in para A-2, pg 6-19).

(1) Ensure the MNS is not system specific. A MNS describes a materiel capability needed, not the solution. Potential materiel solutions that may meet the need are to be described in para 4, “Potential Materiel Alternatives.”

(2) Ensure the MNS does not describe a need that is already described in another MNS which has been approved or is being processed.

(3) Discuss and evaluate non-materiel alternatives and state why they were considered unacceptable in satisfying all or part of the deficiency. This should be a summary of the DTLOMS determination analysis (Appendix E, pg 6-48).

(4) Ensure the potential materiel alternatives listed in para 4 of the MNS are not evaluated. Cite only those alternatives to be considered during the Concept Exploration Phase analyses.

(5) Ensure operational characteristics are not placed in para 5, “Constraints”, of the MNS.

(6) MNS will be no longer than five pages in length.

d. Writing the ORD—general guidelines (specific format is in para A-3, pg 6-21).

(1) Minimum requirements will be stated as operationally justifiable thresholds. If there is a desired capability beyond the threshold which is operationally justifiable, it should be stated as an objective. A requirement (threshold or objective) will not be stated unless it is operationally justifiable.

(2) ACAT I and IA ORDs must fully conform to the format and content outlined in para A-3, pg 6-21, before it will be approved. For all other ACATs, the CBTDEV will tailor the ORD within the parameters outlined in para A-3. If the format paragraph is not pertinent, an N/A notation should be entered.

e. Key Performance Parameters (KPPs).

(1) KPPs are essential to the proper definition of our requirements and have become the focus of the Joint Requirements Oversight Council (JROC), Program Executive Officers/Project Managers/materiel developers, testers/evaluators, and decision makers at all levels. A key performance parameter is that capability or characteristic so significant that failure to meet the threshold can be cause for the concept or system selection to be reevaluated or the program to be reassessed or terminated.

(2) Each ORD submitted for approval will contain proposed KPP in para 4, “Capabilities Required”. Designate proposed KPP with an asterisk in front of specific subparagraphs. Initially designate KPP in ORDs for MS B. KPP may be redesignated or revised during the ORD update between MS B and C. Changes after MS C should be rare.

(3) Each KPP must truly affect a system’s warfighting function; that is, if its threshold is not achieved, the system does not contribute to the fight. An ORD will have the absolute minimum number of parameters designated as KPP.

(4) KPP must be achievable and evaluatable. A KPP’s threshold must reflect bottom line performance standards to be achieved by MS III. Project Manager advice and experi-

mentation insights are essential in projecting achievability. OPTEC evaluator advice must establish that the KPP can be measured.

(5) Rationale for each KPP must clearly lay out in operational terms why the parameter is most essential and what are the operational consequences of not meeting the threshold. Rationale will be supported, to maximum extent possible, by results of sound experimentation and/or proponent or TRAC analysis grounded in the system's employment concept. The rationale supporting the KPPs will be supported by the system's Requirements Analysis.

(6) The JROC will validate the KPPs for all ACAT I and selected IA programs.

(7) An example of KPPs in an ORD is at Appendix D, pg 6-44.

f. Blocking or tiering requirements. To facilitate spiral development, particularly for information technology systems, specific system characteristics are to be blocked or tiered. This provides for future updates. By way of example, an initial system characteristic objective would become a threshold as development matures and newer characteristics might be introduced as objectives.

g. MRDs for C4I systems. MRDs for C4I systems must receive an interoperability validation from J6 (see para 6a). As a minimum, the MRD should contain the following:

(1) A detailed description of the joint operational environment the system will operate in, if any.

(2) A statement that the system will comply with the applicable provisions contained in the Joint Technical Architecture (JTA) to include DII COE compliance. Put the statement in para 5 of the MNS and para 5h of the ORD.

(3) A statement defining the data rate requirements of the proposed system, if it requires support from the common user communications networks (coordinated and analytically based).

h. ORDs with terrain data requirements. If a system will require digital topographic (geospatial) data, the following must be placed in para 5i of the ORD:

(1) The NIMA product, data, level of detail, or service required.

(2) The priority assigned to each requirement, where: priority 1 means mission failure will occur if the product, data, level of detail, or service is unavailable; priority 2 means the mission will experience minor impacts if the product, data, level of detail, or service is unavailable; and priority 3 means the mission will experience minor impacts if the product, data, level of detail, or service is unavailable.

(3) A justification for each of the requirements.

(4) The date the information will be required.

i. ORDs for [or containing] munitions. ORDs for munitions or containing munition sub-systems must include the following statement in para 4c: “Munitions used by this system will be developed to withstand unplanned stimuli identified in a lifecycle system threat hazard assessment.”

j. ORDs without a preceding MNS. If a MNS did not precede the ORD, ensure that the DTLOMS determination analysis is documented in para 1 of the ORD.

k. ORDs for information systems must be updated periodically (system dependent, but not to exceed one year).

5. Staffing MRDs—overview (specific guidance is in Appendix B-1, pg 6-27).

a. The staffing process that the CBTDEV must follow is dictated by whether or not the MRD will be sent to the JROC. JROC oversight is usually based on the ACAT of the system. The ACAT of the system is based on the estimated total cost of the system (refer back to Figure 2-1, for the current cost criteria for each ACAT). Those programs that have been designated ACAT ID and ACAT IAM are JROC oversight. If a program has not yet received its ACAT designation, the CBTDEV will estimate the ACAT potential of the system. Those programs with ACAT I potential will be sent to the JROC. The JROC may also designate any system, regardless of ACAT, as requiring JROC oversight.

b. MRD staffing is conducted by the CBTDEV. Electronic copies of MRDs should be forwarded if at all possible. The draft MRD must be sent, as a minimum, to all addressees on the core staffing list (maintained on the DCSCD Homepage). Other agencies will be included based on the mission and interfaces of the proposed system.

c. When the DCSCD director receives its copy of the MRD during staffing (see core staffing list), the directorate will conduct a concurrent staffing within the HQs and return the comments to the proponent (see Appendix B-1).

6. Certifications and validations.

a. C4I interoperability assessment.

(1) DODD 4630.8 requires all components to provide the Defense Information Systems Agency (DISA) a copy of all MNS and ORDs involving development, acquisition, or modification of C4I systems (or systems with C4I subcomponents) for an interoperability assessment and inclusion in the joint C3I interoperability requirements database. The MNS and the ORDs will be reviewed for compatibility, interoperability, integration, and adherence to standards.

(2) This review is normally done in two stages. The first stage is conducted during the staffing of the MRD. The component POC (ATCD-RP) will electronically send the requirement document through DISA to J6. J6 will then solicit comments (back through DISA) from other DOD staff agencies and return those comments to the component POC. Stage II will be conducted during approval processing at HQ TRADOC for non-major systems; and by the JROC during JROC review for major systems. ATCD-RP will forward the final draft electronically through DISA to J6. J6 and DISA will review the final draft to ensure the comments from Stage I have been incorporated. A J6 final decision will be provided as a result of the Stage II review. Each review will take a minimum of 30 days.

b. Information Technology (IT).

(1) The DISC4, acting as the Army's Chief Information Officer, has been given the responsibility within the Army to ensure a process is designed and developed which maximizes the value and assesses and manages the risk of the Army's IT acquisitions. This will be partially accomplished through an IT validation during MRD development.

(2) The validation is initiated when the DISC4 receives a copy of an MRD containing IT during staffing (DISC4 is on the core staffing list). DISC4 will return comments directly to the proponent. Validation will be achieved when DISC4's comments are incorporated. When an MRD containing IT is forwarded to HQ TRADOC for approval, the proponent will state the disposition of DISC4's comments on the forwarding memorandum. When the DCSCD directorate forwards the MRD to the DCSCD for approval, the disposition of DISC4's comments will be annotated on the TRADOC Form 30.

c. Business Process Reengineering (BPR).

(1) BPR is the process by which an organization analyzes its missions and revises mission related, administrative, and work processes. BPR analyses focus on the process and how it can improve performance, provide for a more effective process, and/or reduce resources. BPR analysis should not be initiated with a mind set toward a materiel solution.

(2) The DISC4, acting as the Army's Chief Information Officer, has been given the responsibility within the Army to ensure that BPR has been conducted before new information technology investments are made. Consequently, requirements documents which contain new information technology requirements must be validated by DISC4 for BPR prior to approval.

(3) Currently, a DTLOMS determination analysis is required to analyze and consider all possible Doctrine, Training, Leader Development, and Soldier (DTLOS) domain solutions before deciding on a materiel solution. The DTLOMS determination analysis must be detailed in para 3 of the MNS, or in para 1 of the ORD if there is not an MNS for the program. The DISC4 has determined that this analysis will suffice as BPR with respect to materiel requirements documented in MNS and ORDs.

(4) The DISC4 will conduct this validation concurrently with the IT validation during staffing. Requirements documents that do not detail the DTLOMS determination analysis will not be validated by DISC4.

7. MRD approval—overview

a. After the School CMDT or Center CDR have finalized the MRD, it will be forwarded to the DCSCD for TRADOC approval.

b. If the School CMDT or Center CDR have identified un-resolvable issues, a formal Council of Colonels (CoC) will be convened.

c. If the School CMDT or Center CDR have not identified issues, the DCSCD staff officer prepares an approval package. The DCSCD staff officer must submit the approval package to the ODCSCD within 30 days from the date the CMDT signed the forwarding memo. Although the MRD may require staffing at this time for validations, the MRD will not be staffed for comment, unless the proponent did not coordinate the initial draft with HQ TRADOC.

d. The MRD approval authority is the CG, TRADOC. In the absence of unresolved issues or major concerns, the CG, TRADOC has delegated the approval authority to the DCSCD. After approval, the DCSCD will normally notify the CG and the appropriate CMDT by e-mail.

8. Post approval processing—overview (specific guidance is in para B-3).

a. After TRADOC approval, MRDs with JROC oversight (see para 5a) will be forwarded through DCSOPS (DAMO-FDJ) to the JROC. After JROC validation, the MRD will be returned to HQ TRADOC for publication.

b. MRDs without JROC oversight will be published directly after approval from HQ TRADOC.

9. Supporting documentation. HQ TRADOC must also ensure that parallel processes which are all working toward the fielding of the same system are integrated. To facilitate this integration, the following documents will be attached to the memorandum releasing the ORD for staffing. The ICT and proponent command/center/school will maintain a coordination file until the next level MRD is approved. JROC O-6 level and other Service coordination should be maintained until after JROC validation of the next level MRD is obtained.

a. System training plan (STRAP). The STRAP is the master training plan for a new system. It outlines the development of the total training plan for integrating the item into the training base and gaining units; plans for all necessary training support, training products, and courses; and sets milestones to ensure the accomplishment of the training strategy. Proponents must develop the STRAP simultaneously with the MRD. The format for the STRAP is

in TRADOC Reg 350-70. A draft STRAP will accompany the ORD during staffing. The STRAP will be approved prior to sending the MRD to HQ TRADOC for approval. Approval authority for the STRAP is HQ TRADOC, DCST. The cover memorandum forwarding the ORD for approval will cite the date that the STRAP was approved.

b. Operational mode summary/mission profile (OMS/MP). The OMS/MP describes how a system or training device will be used in wartime or peacetime at the time it is fielded with focus on the future. Information in an OMS/MP presents a structured, quantitative picture of annual equipment usage.

10. Special processes. Several areas of materiel requirements have such unique circumstances that singular processes have been developed for requirement definition and/or acquisition.

a. Soldier Enhancement Program (SEP). The SEP encompasses all items worn, carried, or consumed by the soldier in a tactical environment and is designed to improve the lethality, survivability, mobility, command and control, and sustainability for all categories of soldiers. The U. S. Army Soldier Systems Command's PM Soldier and U.S. Army TRADOC's TSM Soldier are charged with responsibility for managing the SEP program for the Army. TSM Soldier has user management responsibility and represents all soldiers in the field. PM Soldier is the AMC counterpart responsible for materiel development and fielding. The major thrust of the SEP is to identify and evaluate commercially available individual weapons, munitions, combat clothing, individual equipment, food, water, shelters, communication, and navigation aids in order to get approved items into the hands of the soldiers in less than three years. Proposals for the SEP can be generated by anyone and go before the SEP Review CoC at least twice each year. The CG, TRADOC approves all SEP proposals and priorities, and forwards to HQDA DCSOPS for Army prioritization and funding. After CG, TRADOC approval of the SEP proposal, the originating schools may begin processing the SEP ORD. School Commandants have been delegated approval authority for SEP ORDs. The ORD format will be used, but will be streamlined to the maximum extent possible, so that it only contains necessary operational requirements tailored to that individual system. For the required procedures, see the SEP MOI posted on the DCSCD Homepage (<http://www.tradoc.army.mil/dcscd/index.htm>).

b. Clothing and Individual Equipment (CIE). The CIE program consists of the core soldier items issued to every soldier upon their entry into the Army (clothing bag items). Core items consist of basic uniform items used in both tactical (battledress uniform) and non-tactical (dress uniforms) environments. The CG TRADOC recommends approval of changes or improvements to CIE to the Army Uniform Board (AUB) chaired by ODCSLOG. The AUB then provides recommendations for final approval by the MDA to the CSA. CIE items are documented IAW DOD Reg 5000.2-R and AR 71-9.

c. Organizational CIE (OCIE). The OCIE and integrated fighting systems (i.e., Land, Air, and Mounted Warrior programs) user requirements are managed by the TSM Soldier. The PM Soldier manages execution of RDT&E and fielding of these items. OCIE consists of

TA-50 and MOS-unique items tailored to the mission and operational environmental conditions. The CG TRADOC approves the MRD and forwards it to the MDA, CG, Soldier Systems Command. OCIE items are documented IAW DOD Reg 5000.2-R and AR 71-9.

d. Base operations and nondeployable warfighting IT. MACOMs will follow the procedures outlined in this chapter for approval of warfighting IT requirements and these nonwarfighting IT requirements with program costs greater than \$10 million. MACOMs must establish their own procedures for validating Joint Technical Architecture-Army compliance for their IT requirements with total program costs under \$10 million.

e Requirements for models and simulations use special processes for submission, review, staffing, and approval that are described in Chapter 12 in TP 71-9.

11. Changes to Capstone Requirements Documents (CRDs) and Operational Requirements Documents (ORDs).

a. Changes to approved ORDs are driven by lessons learned through analysis and/or testing, threat, technology, or mission needs and are approved by CG, TRADOC. ORD changes should normally only be made to support a MDR. Changes to support a MDR C should truly be an exception. Procedures for affecting changes are:

(1) Generally, the process of staffing and approving changes to an MRD follows the same process as the original MRD (see paras 5 and 7, pg 6-7 & 6-9).

(2) MRDs in old formats from before August 1991 (i.e., ROC, QMR, etc.) must be updated to the new ORD format before staffing, processing, or submitting for a milestone review. The update process will include updating the threat, interoperability, etc.

(3) The document which is staffed can be either the original document with the proposed changes in DA Form 2028 format or a completely revised edition with line outs (for deletions) and bold face (for insertions) to highlight the changes to the original. The CBTDEV will select the format which is easiest to read and understand for their purposes. In either case, the rationale will be given for each change. Identify KPPs if they have not been identified in the original document. An updated STRAP and OMS/MP will be included, if applicable. When changes are made to an MRD, the document will be reformatted to the ORD/CRD format.

b. After approval, the changes will be published in the same manner as the original MRD. The appropriate DCSCD directorate will incorporate the changes into a revised document and publish the revision in its entirety. The revision will be numbered and recorded using the original CARDS number and other information outlined in Appendix B, para B-3b(1), pg 6-32 unless the magnitude of change qualifies the document as a new requirements document. The title of the document will reflect the change number (i.e., change 2) and the MRD will carry the date the last change was approved.

c. If KPPs are added after the initial ORD is approved, a cost analysis of the KPPs will be developed and the impact on the program will be ascertained. Results of this analysis will be documented and forwarded with the change to be approved.

12. Product improvement.

a. Priority consideration shall always be given to the most cost effective solution over the system's life-cycle. Generally, use or modification of a system or equipment that the government already owns is more cost effective than acquiring new materiel.

b. There are two types of product improvement. The first type is called pre-planned product improvement (P3I) and is planned for before the system reaches production. The second type is usually called a modification and is identified for systems that are being or have been produced.

c. P3I.

(1) P3I is used when market research or testing indicates current technology will not meet the requirements of the user. P3I allows fielding a cost effective, near term solution with current technology while planning to add or upgrade capabilities as technology matures. Those requirements which exceed what is currently technically possible are identified as P3I requirements in para 4 of the ORD. Each P3I requirement represents an essential capability and an intent to eventually modify the system to satisfy those requirements. The ORD must also specify a time for the fielding of the P3I.

(2) When P3I is used, the corresponding objective value of the basic or near term requirement is reduced to reflect what is achievable in the near term.

(3) Whenever possible, P3I requirements should be grouped together when such a grouping can achieve economies in funds, manpower, equipment, and/or time. Such a grouping is called a block modification. A block modification is managed and fielded as a single modification. A single ORD may use several block modifications and phase them in sequentially on a specific time table. When a block modification is used, a paragraph in the ORD will list the P3I requirements that belong in each block and the time schedule for fielding each block. The individual P3I requirements will still be explained in detail (with rationale) in para 4 of the ORD.

d. Modifications.

(1) A proposed modification can originate from any of several sources, e.g., U.S. Government, industry, or allied country. The proposed modification could be to technically upgrade the system or for any of the following reasons:

(a) Interface.

- (b) Compatibility.
- (c) Correction of a deficiency.
- (d) Operational or logistics support.
- (e) Production stoppage.
- (f) Cost reduction.
- (g) Safety.
- (h) Value engineering.

(2) The MATDEV usually approves modifications affecting contractual factors. When form, fit, function, and/or logistics supportability are affected, the MATDEV and CBTDEV will evaluate the recommendation jointly. If the recommendation is accepted, the CBTDEV approves and prioritizes the modification.

e. Documenting and approving the modification.

(1) If a modification fits within the objective requirements defined within the systems supporting MRD, then there is no need to change the supporting MRD. The modification in this case will be approved by the CDR/CMDT of the associated TRADOC Center/School.

(2) If a modification breaches the objective requirements stated in the systems supporting MRD, the Combat Developer will amend the MRD, staff it, and submit it for approval. The staffing and approval process will follow the same process outlined for a new document in this chapter. The CG, TRADOC is the final approval authority for MRD changes.

(3) For those modifications which in themselves breach the ACAT I or IA thresholds, a new ORD is developed and processed for approval IAW the procedures for an ACAT I system defined in this chapter. Modifications that do not cross the ACAT I or IA threshold shall be considered part of the program being modified.

f. Prioritizing the modifications.

(1) The CBTDEV, in coordination with the MATDEV, generates a list of all approved modifications including a recommended priority. This priority represents the urgency of the modification relative to all other modifications for a particular system.

(2) An acquisition strategy (AS) is prepared for all acquisition programs. The AS is the framework for planning, directing, and managing a program. It records the evolution of a given system and provides an indication of current and planned capabilities and/or deficien-

cies for the development of needs and solutions for future battlefields. The MATDEV prepares the modification portion of the AS in coordination with the CBTDEV and includes those modifications approved and prioritized by the CBTDEV. The MATDEV integrates the total modification list.

(3) The MATDEV and CBTDEV jointly review, and the MATDEV updates the AS through a program's life cycle as required, but at least annually as part of the budget preparation cycle.

13. Joint Potential Designators (JPDs).

a. Prior to approval/final validation, every MRD must contain an indication of all other Services' interest in the program. During the approval process of non-JROC oversight MRDs, TRADOC will staff the MRD with all other Services for review (see para B-2b(2)(c)). Each Service will respond with a recommended JPD. The three possible JPDs are:

(1) Independent. No potential for other Service use or systems interface or for joint development or procurement.

(2) Joint interest. Joint program management is inappropriate, but a potential for other Service use or systems interface exists.

(3) Joint. A potential for joint program management, joint funding, and/or joint development or procurement exists.

b. Other Services will staff their draft MRDs through DA DCSOPS to HQ TRADOC (ATCD-RP) for review and recommendation of a JPD. These MRDs will be sent to the appropriate DCSCD directorate for action. The Director will respond directly back to the other Services.

14. Joint requirements.

a. Army lead in requirements determination.

(1) During the ICT to build the requirements document, the other participating Services will be given the opportunity to tailor the basic requirements in the MRD to suit their individual needs. If the program is designated "joint" after the preparation and approval of the Army's requirement, the ICT must reconvene with the other Services in attendance to ensure their requirements are incorporated. The final product is a joint document which outlines one set of requirements (preferred), or which outlines a basic set of requirements with Service-unique requirements listed separately. The latter case would likely lead to Service-unique variants of the same system and should only be pursued if absolutely necessary.

(2) The document will undergo concurrent staffing with the other Services involved in the program to gain their concurrence of the requirements. Each of the other Services will use their own established processes for staffing and approval.

b. Army support in requirements determination.

(1) When another Service has been designated the lead Service for a program in which the Army wants to participate, the Army proponent will participate with the lead Service in building the MRD under the procedures and guidelines of the lead Service. The Army proponent will ensure the requirements stated in the joint document fulfill the Army's needs.

(2) The Army proponent must still acquire CG, TRADOC approval of the MRD and will use the procedures in this guide to the extent that they fit within the timelines established by the lead Service. The Army STRAP and OMS/MP will be staffed within Army channels as outlined in para 5. The CBTDEV, in conjunction with DCSCD AO, is authorized to streamline these processes if the lead Service dictates a more compressed staffing and approval schedule.

c. Adopting other Service's equipment (or approved MRD).

(1) Investigations may reveal that another Service has a fielded system (or approved MRD) that, as is or with minor modifications, adequately fulfills (or describes) an Army MRD. Such a system (or MRD) may be adopted as an Army system (or MRD).

(2) To adopt the other Service's MRD as an Army requirement, the TRADOC proponent staffs the other Service's approved requirement document using the Army's approval process described in this guide. If the other Service has proceeded beyond MS III, the proponent will staff the other Service's MRD with an Army STRAP. If the other Service has not gone beyond MS III, the proponent will staff the other Service's MRD with an Army STRAP and an OMS/MP. After CG, TRADOC approval, the MRD will be processed IAW the procedures outlined in this chapter, depending on the ACAT of the system (i.e., through DCSOPS to the JROC for an ACAT I system, to DCSOPS for a CARDS number for a non-major system). The announcement letter will be issued by DCSCD (see Figure C-11).

(3) Regardless of originating Service, CG, TRADOC approves all Army-interest MRDs.

15. Operational Needs Statement (ONS). The ONS may be submitted only by an operational field commander to document a contemporary operational issue which jeopardizes soldiers' lives or mission accomplishment within that unit or its area of operation. AR 71-9 provides content and processing guidance for ONSs. The originating organization forwards the ONS under a GO's signature to HQDA (DAMO-FDJ) for approval processing. If DCSOPS validates and approves the commander's need, it may be resourced and sent to the MATDEV for immediate procurement. If DCSOPS does not resource, the ONS will be forwarded to HQ TRADOC. TRADOC will assess the requirement in the ONS for Army-wide

applicability. If TRADOC decides to pursue the requirement stated in the ONS, a standard requirement document (MNS/ORD) will be generated to initiate a new “Army-wide” program.

16. User Functional Description (UFD). See Appendix O in TP 71-9 for more details. A UFD is prepared by CBTDEVs as a follow-on to the ORD to refine/explain in detail ORD requirements related to IT. CBTDEVs will decide the need for a UFD based on the anticipated degree to which the system will use IT. CBTDEVs may decide not to write and maintain a separate UFD if their input into the MATDEVs IT system documentation provides sufficient operational information. CBTDEVs will consult with MATDEV and operational tester and evaluator regarding the utility of a UFD for a particular system. The CBTDEV ultimately decides whether the UFD is necessary.

17. International requirements.

a. U.S. Army lead in international requirements determination.

(1) During the international ICT to build the requirements document, the other participating nations/Services will be given the opportunity to tailor the basic requirements in the MRD to suit their individual needs. If the program is designated "international" after the preparation and approval of the Army's requirement, the international ICT must reconvene with the other nations/Services in attendance to ensure their requirements are incorporated. The final product is an international document which outlines one set of requirements (preferred), or which outlines a basic set of requirements with national/Service-unique requirements listed separately. The latter case would likely lead to national/Service-unique variants of the same system and should only be pursued if absolutely necessary. The title name, Operational Requirements Document (ORD), will be negotiated with the international requirements partners and is not necessarily a mandatory name. Where significant variations exist between the international requirements document and the U.S. requirements document, the U.S. requirements will be attached as an annex to the international document to support requirements traceability.

(2) The document will undergo concurrent staffing with the other nations/Services involved in the program to gain their concurrence of the requirements. Each of the other nations/Services will use their own established processes for staffing and approval. The Army proponent will follow the normal procedures outlined in this chapter to gain Army approval of the requirement. OMS/MP and STRAP are still necessary to achieve Army approval, but will not be considered a part of the international MRD.

b. U.S. Army support in international requirements determination.

(1) When another nation/Service has been designated the lead Service for a program in which the Army wants to participate, the Army proponent will participate with the lead nation/Service in building the MRD under the procedures and guidelines of the lead Service.

The Army proponent will ensure the requirements stated in the international/joint document fulfill the Army's needs.

(2) The Army proponent must still acquire CG, TRADOC approval of the MRD and will use the procedures in this guide to the extent that they fit within the timelines established by the lead nation. The Army STRAP and OMS/MP will be staffed within Army channels as outlined in para 5. The Army proponent is authorized to streamline these processes if the lead nation dictates a more compressed staffing and approval schedule.

c. Adopting other national equipment (or approved MRD).

(1) Investigations may reveal that another nation has a fielded system (or approved requirements document) that, as is or with minor modifications, adequately fulfills (or describes) an Army requirement. Such a system (or requirement document) may be adopted as an Army system (or requirement).

(2) To adopt the other nation's MRD as an Army requirement, the TRADOC proponent staffs the other nation's approved requirement document using the Army's process described in this guide. If the other nation has proceeded into procurement, the proponent will staff the other nation's MRD with an Army STRAP. If the other nation has not gone beyond MS III, the proponent will staff the other nation's MRD with an Army STRAP and an OMS/MP. After CG, TRADOC approval, the MRD will be processed IAW the procedures outlined in this chapter, depending on the ACAT of the system (i.e., through DCSOPS to the JROC for an ACAT I system, to DCSOPS for a CARDS number for a non-major system). The announcement letter will be issued by DCSCD (see Figure C-11).

d. MRD staffing. The purpose of international development and acquisition programs is to reduce U.S. development costs through cost-sharing. The final requirements will be based on a trade between the international partners based on operational effectiveness, operational suitability, and program development, acquisition, and life-cycle costs.

e. JROC approval. The U.S. will designate national KPPs for the system and will explain the purpose and U.S. program potential impacts to the international partners associated with failing to meet a KPP threshold. The JROC will approve the U.S. KPPs associated with any U.S. participation in an international development and acquisition program.

Appendix A

Materiel Requirement Document (MRD) Formats

A-1. Capstone Requirements Document (CRD) format. (Extracted and amplified from CJCSI 3170.01.)

Paragraph 1: General description of operational capability. Describe the overall mission area, the type of capability proposed, and the anticipated operational and support concepts in sufficient detail for program, logistics, and other support planning. This must be a concise statement of how, what, when, and where the system fits on the battlefield. As such, the description should outline typical mission events/tasks, operational and sustainment interfaces, expected accomplishments related to overall force, and organizational impacts on employing, parent, and supporting organizations. Include a brief summary of the mission need. If a documented mission need did not precede the CRD, explain the process that investigated alternatives for satisfying the mission need and developing operational requirements.

Paragraph 2: Threat. Summarize the threat to be countered and the projected threat environment. This threat information should reference DIA or Service Technical Intelligence Center-approved documents and be validated by the Service Intelligence Director. For major defense acquisition programs (ACAT I), reference the DIA-validated threat assessment. In some non-warfighting systems, the threat may be listed as not applicable.

Paragraph 3: Shortcomings of existing systems. Describe why existing systems cannot meet current or projected requirements (do not describe a proposed system).

Paragraph 4: Capabilities required. Identify operational performance parameters (capabilities and characteristics) required. Articulate requirements in operational, output-oriented, and measurable terms. Specify each performance parameter in terms of a minimum acceptable value (threshold) required to satisfy the mission need. Objectives, if stated, should represent a measurable, beneficial increase in capability or operations and support above the threshold. If an objective is not stated, it is assumed to be the same as the threshold. Rationale will be given for each requirement and will be placed with the requirement in the body of the CRD. The rationale must be stated in operational terms.

a. System performance. Describe mission scenarios (wartime and peacetime, if different) in terms of mission profiles, employment tactics, countermeasures, and environmental conditions (all inclusive: natural and man-made, e.g., weather, ocean acoustics, information warfare, etc.).

b. Identify system performance parameters such as range, accuracy, payload, speed, mission reliability, etc. Recommend which parameter should be considered a key performance parameter.

A-2. Mission Need Statement (MNS) format. (Extracted and amplified from CJCSI 3170.01.)

Paragraph 1: Defense Planning Guidance element. Identify the major program planning objective or section of the DPG to which this need responds. Also reference Joint Intelligence Guidance and DOD or Military Department long range investment plans, if applicable. State the approved TRADOC FOC that the MNS is supporting. For MAIS programs, also describe how the mission need relates to the OSD Principal Staff Assistant's (PSA's), DOD Chief Information Officers', and the DOD component's strategic planning.

Paragraph 2: Mission and threat analyses. Clearly identify and describe the mission need or deficiency. Define the need in terms of mission, objectives, and general capabilities. Do not discuss the need in terms of equipment or system-specific performance characteristics. Discuss the DIA-validated threat to be countered as well as the projected threat environment. This threat information should be drawn from the DIA documents and be approved by the DCSINT/SIO. For some non-warfighting systems, the threat may be listed as not applicable. The DCSINT/SIO will make final determination on the necessity for a validated threat assessment. Discuss the shortfalls of existing capabilities or systems in meeting these threats. Comment on the timing of the need and the general priority of this need relative to others in this mission area. For MAIS programs, also describe the functional area or activity the MNS supports, and the functional area or activity's current organization and operational environment, with emphasis on existing functional processes, including the concept of operation of the existing functional processes, procedures, and capabilities. Describes the shortfalls of existing capabilities.

Paragraph 3: Non-materiel alternatives. Discuss the results of the DTLOMS determination analysis. Identify any changes in U.S. or Allied doctrine, warfighting concepts, tactics, organization, and training that were considered in the context of satisfying the deficiency. Describe why such changes were judged to be inadequate.

Paragraph 4: Potential materiel alternatives. Identify known systems or programs which the market survey identified as addressing similar needs and are deployed or are in development or production by any of the Services or Allied nations. Discuss the potential for inter-Service or Allied cooperation. Indicate potential areas of study for concept exploration including the use of existing U.S. or Allied military or commercial systems or product improvements of existing systems. Do not evaluate these alternatives.

Paragraph 5: Constraints. Describe, as applicable, key boundary conditions related to infrastructure support that may impact on satisfying the need: logistics support; transportation; global geospatial information and services (e.g., mapping, charting, and geodesy) support; manpower, personnel, and training constraints; environmental protection requirements; C3, intelligence, or other interfaces; security; and standardization or interoperability within DOD components, North Atlantic Treaty Organization (NATO), and other allies and friendly nations. Address the operational environments (including conventional; initial nuclear weapon effects; nuclear, biological, and chemical contamination (NBCC); Information As-

urance; environmental protection; electronic; and natural) in which the mission is expected to be accomplished. Define the level of desired mission capability in these environments. For MAIS programs, also identify the classification level(s) and level of assurance required for the system; describe the anticipated system security interface(s) and interoperability requirements, if known; and include information warfare in the discussion of operational environments in which the mission is expected to be accomplished.

Paragraph 6: Joint Potential Designator (JPD). Indicate the JPD established through the validation process (joint, joint interest, independent; see para 13).

A-3. Operational Requirement Document (ORD) format. (Extracted and amplified from DOD Reg 5000.2-R.)

Paragraph 1: General description of operational capability. Perhaps one of the most critical elements of the ORD. Describe the overall mission area, the type of system proposed, and the anticipated operations and support concepts (how the system will be employed and supported) in sufficient detail for program and logistics support planning. This must be a concise statement of how, what, when, and where the system fits on the battlefield. This statement must include consideration/explanation of joint and coalition interoperability (not RSI). As such, the description should outline typical mission events/tasks, operational and sustainment interfaces, expected accomplishments related to overall force, and organizational impacts on employing, parent, and supporting organizations. The operations and support concept must be linked to warfighting concept appropriate to the time of fielding (almost never current doctrine). If applicable, address the requirement for split-based operations of units and the corresponding resource and logistics planning requirements. State the approved TRADOC FOC(s) that this requirement is supporting. Include a brief summary of the mission need and state if the need is mission critical, and include a sentence stating: “A DTLOMS determination analysis was completed and non-materiel alternatives were judged to be inadequate. [Discuss and evaluate the results of the DTLOMS determination analysis.]”. Identify known systems or programs which the market survey identified as addressing similar needs and are deployed or are in production by any of the Services or Allied nations. Discuss the potential for inter-Service or Allied cooperation.

Paragraph 2: Threat. Summarize the threat to be countered and the projected threat environment. This threat information should reference DIA or Service Technical Intelligence Center-approved documents and be validated by the Service Intelligence Director. For major defense acquisition programs (ACAT I), reference DIA-validated threat assessment. In some non-warfighting systems, the threat may be listed as not applicable.

Paragraph 3: Shortcomings of existing systems. Describe why existing systems cannot meet current or projected requirements (do not describe a proposed system).

Paragraph 4: Capabilities required. Identify operational performance parameters (capabilities and characteristics) required. Operational performance includes machine with soldier(s) performing missions in its operational environment. Articulate requirements in operational, output-oriented, and measurable terms. Specify each performance parameter in terms of a minimum acceptable value (threshold) required to satisfy the mission need. Objectives, if stated, should represent a measurable, beneficial increase in capability or operations and support above the threshold. Rationale will be given separately for every requirement and included in the body of the ORD immediately following the requirement it supports (e.g., “The system requires X. Rationale: The system must be able to operate ...”). If objectives are stated, rationale will be provided which justifies the objective as well as the threshold. Rationale will be given in operational language providing a credible audit trail explaining the operational significance of each requirement. The rationale will not refer to Army regulations, military standards, or military specifications.

Paragraph 4a: System performance. Describe mission scenarios (wartime and peacetime, if different) in terms of mission profiles, employment tactics, countermeasures, and environmental conditions (all inclusive: natural and man-made, e.g., weather, ocean acoustics, information warfare, etc.). Identify system performance parameters such as range, accuracy, payload, speed, mission reliability, etc. Recommend which parameter should be considered a KPP and identify with an asterisk. Soldiers must be able to operate the system to the required operational performance for mission accomplishment.

Paragraph 4b: Logistics and readiness. Include measures for mission-capable rate, operational availability, frequency and duration of preventive or scheduled maintenance actions, etc. Describe in terms of mission requirements considering both wartime and peacetime logistics operations. Identify combat support requirements including battle damage repair capability, mobility requirements, expected maintenance levels, and surge and mobilization objectives and capabilities. Use Built-In Test or Built-In Test Equipment (BIT/BITE) to unambiguously fault isolate to the single LRU at the unit level and single SRU at DS/GS level of maintenance.

Paragraph 4c: Other system characteristics. A special category of characteristics that tend to be design, cost, and risk drivers. Address Electronic Attack (EA), information assurance, and wartime reserve mode (WARM) requirements for smart/brilliant weapons system field reprogrammability; conventional, initial nuclear weapons effects, and NBCC survivability (see Appendix S for additional information); natural environmental factors (such as climatic, terrain, and oceanographic factors); unplanned stimuli (for munition systems or systems which include munitions, add the statement, "Munitions used by this system will be developed to withstand unplanned stimuli identified in a lifecycle system threat hazard assessment."); electromagnetic environmental effects (E3) and spectrum certification and supportability for systems and equipment; and parachute static line, freefall, slingload, or aerial delivery requirements. Field reprogramming must be accomplished by the maintenance support unit using organic personnel without augmentation and without removing system components. Identify characteristics (confidentiality, integrity, accuracy, timeliness, and availability) to defend against and survive information warfare attack. Define the expected mission capability (e.g., full, percent degraded, etc.) in the various environments. Include applicable safety parameters such as those related to system, nuclear, explosive, and flight safety. Identify communications, information, and physical and operational security needs to include protection of organic platform electronics from computer network attacks (CAN) directed against platform information/communications systems.

Paragraph 5: Program support. Establish support objectives for initial and full operational capability. Discuss interfacing systems (at the system/subsystem, platform, and force levels), specifically those related to C4I, transportation and basing, and standardization and interoperability. Identify companion ORDs and other Services that may have similar requirements. Assign a JPD (joint, joint interest, or independent).

Paragraph 5a: Maintenance planning. Identify maintenance tasks to be accomplished and time phasing for all levels of maintenance. Include programmed maintenance and surveillance inspections such as nuclear hardness and structural integrity. Describe the envisioned planning approach for contract versus organic repair.

Paragraph 5b: Support equipment. Define the standard support equipment to be used by the system. Describe the test and fault isolation capabilities desired of automatic test equipment at all levels, expressed in terms of realistic and affordable probabilities and confidence levels. Consider use of Embedded Diagnostics in all systems development. Weapon system should be designed for testability and embedded diagnostics employed where feasible. Specify the capability of on-board diagnostics and give location and purpose of sensors.

Paragraph 5c: Human Systems Integration/MANPRINT. Address each HSI/MANPRINT domain:

(1) Establish broad, manpower constraints for operators, maintainers, and support personnel. Identify requirements for manpower factors that impact system design (utilization rates, pilot-to-seat ratios, maintenance ratios).

(2) Establish broad cognitive, physical, and sensory requirements for the operators, maintainers, or support personnel that contribute to, or constrain, total system performance, including training constraints.

(3) Establish requirements for human performance that will achieve effective human-system interfaces.

(4) Identify requirements for combining, modifying, or establishing new military occupational specialties.

(5) Describe the training concept. State how individuals, units, and crews will be trained to operate, maintain, and manage the system for both Active and Reserve Components. Describe the new equipment training (NET) concept to initially transfer knowledge about the system to the gaining unit. The goal is for NET to be self-taught or taught by a small NET Team using distance-learning media when it is cost- and training-effective. The system Training Support Package (TSP) will use Interactive Multimedia Instruction (IMI) and be designed for multipurpose use in support of institutional training, new equipment training (NET), and unit sustainment training. State TSP requirements in terms of need, rationale, and projected quantities for each type of training product required to support training the system. Include requirements for Training Aids, Devices, Simulators, and Simulations (TADSS), targetry, training ammunition, and the logistical concept to support the TADSS. State what training capabilities are to be embedded in terms of functional requirements and category of embedded training. If no embedded capability is required, so state. State CTC instrumentation and interface requirements.

(6) Include safety or health and critical errors that reduce job performance or system effectiveness given the operational environment.

(7) Provide soldier survivability operational requirements to reduce detectability by the enemy, reduce fratricide, facilitate cover and concealment, minimize likelihood and extent of injuries if engaged, and minimize physical and mental fatigue.

(8) Determine objectives and thresholds for the above requirements, as appropriate. Generally, routine priority HSI/MANPRINT requirements will be placed in para 5c. When the ORD developer believes that any particular HSI/MANPRINT requirement is essential to system performance, that requirement should be included in para 4a. When a requirement is essential for logistics and readiness, it should be included in 4b. When a requirement describes an essential system characteristic, it should be included in para 4c. When an HSI/MANPRINT consideration is vital to a requirement and it satisfies the tests for a KPP, include it in 4a.

Paragraph 5d: Computer resources. Identify computer resource constraints (examples include language, computer, database, architecture, or interoperability constraints). Address all mission critical and support computer resources, including automated test equipment. Describe the capabilities desired for integrated computer resources support. Identify any unique user interface requirements, documentation needs, and special software certifications. Additionally, provide, as appropriate, operational architecture input. All technical manuals will be Interactive Electronic Technical Manuals (IETM) for –20 and above level of maintenance.

Paragraph 5e: Other logistics considerations. Describe the provisioning strategy for the system. Specify any unique facility, shelter, or environmental compliance requirements. Identify special packaging, handling, and transportation considerations. Define unique data requirements such as engineering data for depot support and technical orders for the system and depot. Identify dedicated facilities or facility enhancements required to support training.

Paragraph 5f: Command, control, communications, and intelligence. Using the operational architecture approach, describe how the system will be integrated into the C4I architecture that is forecast to exist at the time the system will be fielded. Include data fusion requirements and type of data (data, voice, video), frequency of data, computer network support/protection, and antijam requirements. Identify unique intelligence information requirements, including intelligence interfaces, communications, and database support pertaining to target and mission planning activities, threat data, etc.

Paragraph 5g: Transportation and basing. Describe how the system will be moved either to or within the theater to include any lift constraints. Detail the basing requirements (main and forward operating bases) and associated facilities needed for training.

Paragraph 5h: Standardization, interoperability, and commonality. Describe considerations for joint use, NATO cross-Servicing, etc. Identify procedural and technical interfaces, and communications, protocols, and standards required to be incorporated to ensure compatibility and interoperability with other Service, joint service, and allied systems. Identify systems requiring interoperability with the system and any special considerations (e.g., computer to computer, magnetic media, etc.). The system shall be interoperable with Army Battle Command Systems (ABCS) to include FBCB2. It will be compliant with the Army Software Reuse Policy, Joint Technical Architecture, Defense Information Instruction Common Operating Environment, and ABCS CRD. Address energy standardization and efficiency needs for both fuels and electrical power as applicable. The overarching goal of electric power management is to reduce electrical power requirements and its consumption/drain. We facilitate efforts towards power consumption reduction through deliberate power management, requesting more effective, power-conserving software, and more energy-efficient circuitry/components. Additionally, we must be concerned with improved and innovative means of delivering electrical power with the goal of minimizing or eliminating the performance encumbering logistical support tails. Communications/Electronics systems powered by batteries must use standard, either military or commercial off-the-shelf, batteries and be capable of operation with rechargeable batteries during training. When developing future operational mission profiles, the user must anticipate the increasing integration of rechargeable batteries with primary (nonrechargeable) batteries.

Paragraph 5i: Mapping, charting, and geodesy support. Identify cartographic materials, digital topographic data, and geodetic data needed for system employment. Where possible, National Imagery and Mapping Agency (NIMA) standard military data will be used.

Paragraph 5j: Environmental support. Identify the standard and unique weather, oceanographic, and astrogeophysical support required. Include data accuracy and forecast requirements.

Paragraph 6: Force structure. Estimate the number of systems or subsystems needed, including spares and training units. Identify units or platforms and quantities of these platforms (including other Services or government agencies if appropriate) that will employ the systems or subsystems being developed and procured to satisfy this ORD. Also identify materiel end items planned or programmed for training (over and above force structure requirements); for example, at the institution.

Paragraph 7: Schedule considerations. Define what actions, when complete, will constitute attainment of initial and full operational capability (leave flexible for these to be revised as the program is progressively defined and trade-off studies are completed). Clearly specify the operational capability or level of performance necessary to declare initial and full operational capability. Include the number of operational systems, operational and support personnel, facilities, and organizational, direct support, general support, and depot maintenance elements (renamed field and sustain maintenance in emerging Force XXI doctrine) that must be in place. If availability in a specific timeframe is important, specify an objective for

initial operational capability. Describe the impact if this objective is not achieved and identify a window of acceptability, if appropriate.

Appendix B

Materiel Requirement Document (MRD) Processing

B-1. Staffing MRDs.

a. MRDs are staffed by the proponent to all the addresses on the core staffing list found on the DCSCD Homepage (see Figures B-1 and B-2). The proponent will expand the staffing to other commands and agencies based on the mission and interfaces of the proposed system. Addressees will be given 60 calendar days to respond. The staffing memorandum will announce the time and place the ICT will reconvene to prepare the final draft MRD (see Figure C-1).

b. One of the HQ TRADOC, DCSCD directorates will receive a copy of the MRD from the proponent during staffing. The DCSCD directorate will conduct concurrent staffing of the MRD within HQ TRADOC. The addresses below will be given 45 calendar days to respond back to the DCSCD AO. The DCSCD AO will then return the results of the staffing back to the proponent in time to meet the proponent's 60 day suspense date.

(1) Unclassified

From appropriate DCSCD directorate to:

DCSCD (ATCD-E, -G, -M, -S, -Q)

DCSDOC (ATDO-A)

DCST (ATIC-DMR)

DCSINT (ATIN-I)

DCSSA (ATAN-A) for modeling and simulation MRDs

Copy furnished:

DCSSA (ATAN-A) for non-M&S MRDs

DCSBOS (ATBO-SO, -SE)

DCSCD (ATCD-B, -H, -R*)

*ATCD-R must be provided an electronic copy. ATCD-R will initiate the Stage I review with J6 for C4I systems.

(2) Classified

(a) DCSCD directorate will conduct the same staffing as b(1) above (delete ATCD-R from staffing).

(b) For C4I systems, or systems with C4I subcomponents, the DCSCD directorate will mail the MRD to J6 requesting a Stage I Interoperability Assessment to Joint Staff, ATTN: J6I (Room 1E833), Pentagon, Washington, D.C. 20318-6000 (30 day suspense).

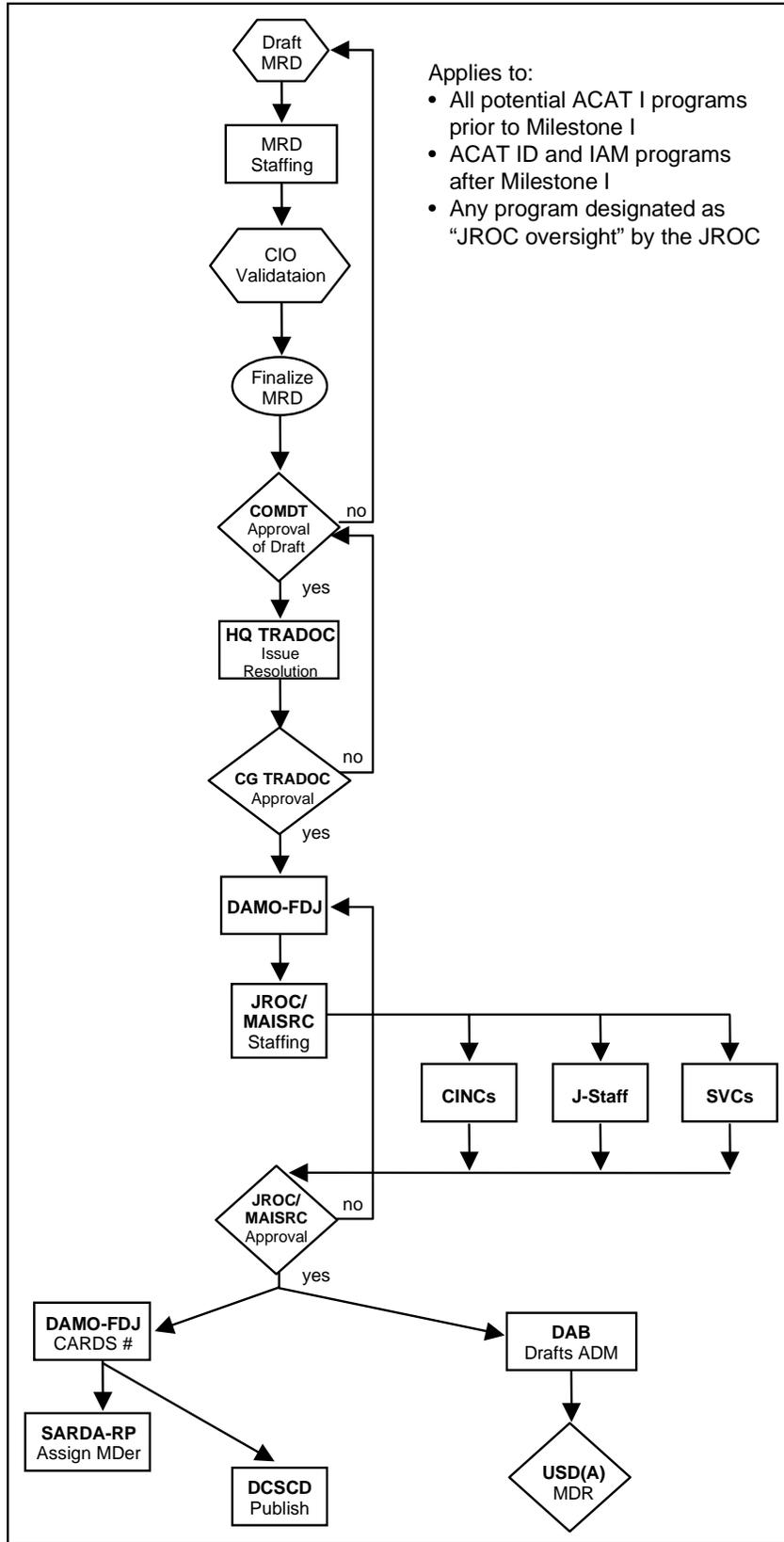


Figure B-1. Staffing process for JROC oversight programs

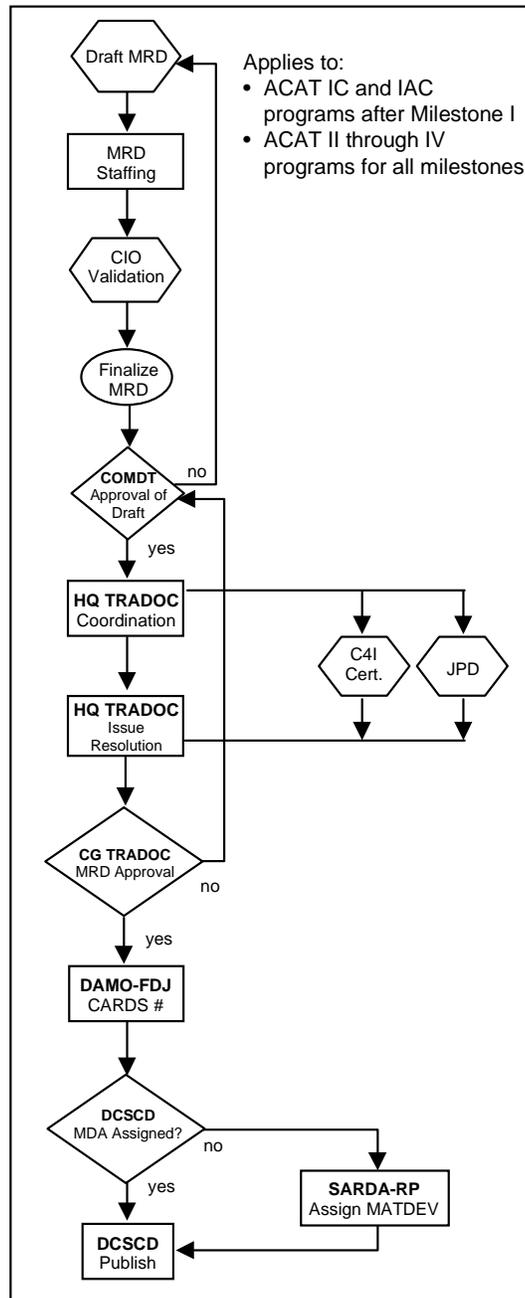


Figure B-2. Staffing process for non-JROC oversight programs

B-2. Approving MRDs.

a. When the School CMTD or Center CDR finalizes the draft MRD, it will be forwarded to HQ TRADOC, ATCD-ZA for approval. The forwarding memorandum is at Figure C-2. At the same time, the DCD will e-mail a copy of the final draft to the appropriate DCSCD directorate to begin approval processing. If classified, mail on a 3.5" disk.

b. The DCSCD directorate will complete (1) or (2) below based on whether the system is a JROC oversight system or a non-JROC oversight system (see para 5a).

(1) The program has JROC oversight (classified and unclassified).

(a) If issues are identified by the CMDT/CDR on the memorandum forwarding the MRD for approval, the DCSCD directorate will convene a HQ TRADOC Council of Colonels.

(b) Conduct final coordination with USANCA (survivability@usanca-smtp.army.mil) and DCST ATIC-DMR (ATICDMR@atsc.army.mil). Each office will be given five working days to respond. If classified, mail the MRD to the addresses found on the core staffing list and give 21 days to respond.

(c) If no issues are identified by the CMDT/CDR, the appropriate DCSCD directorate will forward it to the DCSCD for approval. Format of HQ TRADOC Form 30 is at Figure C-3, format of the memorandum for DCSCD signature is at Figure C-4 (for MNS) or Figure C-5 (for ORD).

(2) The program does not have JROC oversight.

(a) If issues are identified by the CMDT/CDR, the DCSCD directorate will convene a HQ TRADOC Council of Colonels.

(b) J6 Stage II review (C3I Certification).

1. Unclassified. For those systems with C4I implications, the DCSCD directorate will send an electronic copy to DCSCD (ATCD-R). ATCD-R will initiate the Stage II review for C4I certification. (J6 will be given 30 days to respond.)

2. Classified. For those systems with C4I implications, the DCSCD directorate will mail the MRD to J6 and ask for a Stage II Interoperability Assessment (address in para B-1b(2)(b)).

(c) Interservice harmonization. The DCSCD directorate will staff the MRD directly with the USAF, USN, and the USMC (copy furnished USASOC) asking for a Joint Potential Designator (JPD). Format for the staffing memorandum is at Figure C-8. Services will be given 30 days to respond.

(d) Conduct final coordination with USANCA and DCST as outlined in B-2b(1)(b) above.

c. After the completion of B-2b(2)(a), (2)(b), (2)(c), and (2)(d), the DCSCD directorate will forward the MRD to the ADCSCD for approval. Format of the HQ TRADOC Form 30 is at Figure C-9 and the format of the memorandum for ADCSCD signature is at Figure C-6 (for MNS) or L-7 (for ORD). The CARDS # on the memorandum will be left blank and filled in after ADCSCD approval.

B-3. Post approval processing.

a. JROC oversight MRDs.

(1) After CG, TRADOC approval of an MRD with JROC oversight, the DCSCD directorate will forward the MRD to DCSOPS for processing (see Figure C-4 or C-5).

(2) ADCSOPS-FD conducts a final sanity check review of MRDs before forwarding to the JROC or MAISRC. HQ TRADOC, DCSCD functional directorate will represent TRADOC during this review. DCSOPS will forward the MRD to JROC/MAISRC for further action. MRDs that are potential ACAT IA are forwarded to the MAISRC; all ACAT ID systems are forwarded to the JROC.

(3) JROC staffing. The JROC and MAISRC are separate, but their staffing processes are similar. The JROC or MAISRC staffing will include the CINCs, other Services, and the Joint Staff. The final C4 certification comes from this Stage II review. The other Services will provide input to the JROC for final determination of a Joint Potential Designator. CJCSI 3170.01 provides details on the Joint Staff's MRD processing.

(4) JROC staffing includes an initial O-6 level review. Upon completion of this step, comments are compiled and forwarded back to DCSOPS for incorporation or review as necessary. DCSOPS will, in turn, task the MRD author (usually TRADOC school) to incorporate, revise, and return. The TRADOC school will assist DCSOPS in preparing a matrix delineating the disposition of critical and substantive comments received during the O-6 level review. Only if issue resolution is not possible, will HQ TRADOC/SMDC be involved in the forwarding or return of the MRD.

(5) JROC staffing also includes O-8 or flag-level review of the MRD subsequent to the O-6 review. Any issues will be resolved as described in B-3a(4) above.

(6) Following O-6 and O-8 reviews and actions, all MRDs must be briefed IAW CJCSI 3170.01.

(7) JROC validation. With validation, the JROC will make the final JPD determination and designate a lead Service, if necessary. The validated document is forwarded to the Defense Acquisition Board (DAB) for preparation for the ADM. DCSOPS is notified of the validation.

(8) Issue CARDS number. After the JROC has validated the MRD, DAMO-FDJ will enter the MRD into the CARDS and issue the MRD a CARDS number. DCSOPS will notify HQ TRADOC (ATCD-RP) of the validation and issuance of the CARDS number.

(9) Assign a MATDEV. Even though there is a MATDEV on the ICT, a materiel development office will not officially be assigned until after the MRD has been approved.

After approval of the MRD, DCSOPS will send the MRD to the Secretary of the Army for Research, Development, and Acquisition (SARDA-RP) for assignment of a MATDEV.

(10) Publish approved MRD. The approval date will be printed onto the MRD before release. The DCSCD AO will prepare the approval announcement memorandum (Figure C-6 for MNS or Figure C-7 for ORD) for release by the DCSCD. The document will be sent, as a minimum, to the proponent and those on the core staffing list.

(11) For M&S MRDs, the TRADOC DCSSA will determine the appropriate M&S domain and assign the MRD to the domain agent (DCSCD for ACR, DCST for TEMO, HQ AMC DCG(A) for RDA). DCSSA will staff cross-domain MRDs or assign a primary domain agent. The domain agent will assign an AO for staffing and integration.

b. Non-JROC oversight MRDs.

(1) After CG TRADOC approval, the DCSCD directorate will obtain a CARDS number by e-mailing the following information to PMSD:

- (a) Title (directly from MRD).
- (b) Functional area.
- (c) Type document (MNS/ORD).
- (d) Predecessor document (give CARDS number).
- (e) Date approved.
- (f) CBTDEV (appropriate proponent school).
- (g) MATDEV (appropriate command).
- (h) Management level (ACAT of the system).

(2) PMSD will e-mail a request to DCSOPS for a CARDS number. After issuance, PMSD will forward back to the DCSCD directorate.

(3) Assign MATDEV. If a MATDEV has not yet been assigned, the appropriate requirements directorate will forward the MRD by cover letter to SARD-RP requesting a MDA be assigned (see Figure C-10, pg 6-42). This is normally required for the MNS, or the first ORD if there was not an MNS for the system.

(4) Publish approved MRD. Follow the same procedures as ACAT I (see para B-3a(10)). A copy of the approved MRD will be forwarded to the MATDEV (if assigned).

Appendix C

Materiel Requirement Documents (MRD) Transmittal Memorandum Samples

PROPONENT LETTERHEAD	
	S: (60 days from transmittal date)
(OFC SYM) (MARKS)	DD MM YY
MEMORANDUM FOR SEE DISTRIBUTION	
SUBJECT: Draft (MNS/ORD) for (name of system)	
1. References:	
a. DODD 5000.1, Defense Acquisition, 15 Mar 96	
b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.	
c. AR 71-9, Materiel Requirements, 30 Apr 97.	
d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.	
2. Forwarded at Encl 1 is the draft (MNS/ORD) for (name of system).	
3. The DOD members of the integrated concept team (ICT) will reconvene at (location) on (date) to finalize the draft (document). Any DOD office with special interest or issues may attend the ICT. You must give notice of your intention to attend the ICT with your comments to the enclosed draft (MNS/ORD). Your representative to the ICT must have authority to represent your organization to resolve any issues in developing the final draft.	
4. Request action addressees provide comments by (date before the joint ICT). Copy furnished addressees provide comments if they choose.	
5. The chairperson of the ICT is (name and phone number). The (materiel developer MSC, PEO/PM) is requested to provide the ICT joint work group vice-chairperson.	
AUTHORITY LINE: (as appropriate)	
3 Encls	(Proponent Director)
1. MNS or ORD	
2. OMS/MP	
3. STRAP	
DISTRIBUTION:	

Figure C-1. Sample draft MNS/ORD transmittal memorandum for staffing

PROPONENT LETTERHEAD	
OFC SYM (MARKS)	DD MM YY
MEMORANDUM FOR COMMANDER,, U.S. ARMY TRAINING AND DOCTRINE COMMAND, ATTN: ATCD-ZA, FORT MONROE, VA 23651-5000	
SUBJECT: Draft (MNS/ORD) for (name of system)	
1. References	
a. DODD 5000.1, Defense Acquisition, 15 Mar 96.	
b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information (MAIS) Acquisition Programs, 23 Mar 98.	
c. AR 71-9, Materiel Requirements, 30 Apr 97.	
d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.	
2. Request your approval of subject document (Encl).	
3. This paragraph will contain a brief description of the operational need/system.	
4. This MNS/ORD has been staffed with the prescribed "Core Staffing", and all comments and issues have been resolved through the ICT process. (If issues remain, summarize them here.)	
5. This system should be an ACAT _____ program.	
6. The STRAP was approved by DCST on DD MM YY.	
7. The requirement document has been staffed with DISC4 and their comments have been incorporated.	
8. The Point of Contact for this action is (TRADOC proponent's action officer's name, office symbol, phone number, and e-mail address).	
AUTHORITY LINE: (as appropriate)	
2 (or 3) Encls	(CMDT/CDR SIGNATURE)
1. MNS or ORD	
2. DTLOMS Determination Analysis Report (for potential ACAT I and II MNS) OR Requirements Analysis (for ACAT I and II ORDs; see Appendix E for content guidance)	
3. STRAP (if ORD)	

Figure C-2. Sample memorandum forwarding final draft MNS/ORD to HQ TRADOC for approval

TRANSMITTAL, ACTION AND CONTROL							
CONTROL		SUSPENSE DATE:		CLASS:		DATE: XX XXX XX	
SUBJECT: (MNS) or (ORD) for (Name of System)							
ACTION OFFICE/SYMBOL: ATCD- XX			INFORMATION/ASSIST:		ACTION OFFICER/TELEPHONE: XXXXXXXXXXXXXXXXXX		
SIGNATURE XXXXXX APPROVAL INFORMATION RESOURCE IMPACT (Y/N) RC IMPACT (Y/N)							
XXXXXX	DCSCD	ASGS	GS	CSM	ACS	CS	DCG CG, XO CG
PURPOSE: DCSCD approves the (MNS or ORD) for (name of system) and signs memorandum at TAB A forwarding to DA for validation. (Use Figure C-4 for MNS and Figure C-5 for ORD.)							
SUMMARY:							
1. (Subject Document) was forwarded to HQ TRADOC for approval on (date), see TAB B (place CMDT's/CDR's forwarding letter and MRD at TAB B). Place brief description of system here.							
2. An ICT was conducted and there are no remaining issues. (OR if issues were identified by the CMDT/CDR, explain how they were resolved by the HQ TRADOC Council of Colonels.)							
COORDINATION: DCST (ATIC-DMR): USANCA: J6 Stage I Review and DISC4 validation for IT completed on: (date)							
APPROVAL/RELEASE							
	NAME	INITIAL	DATE		NAME	INITIAL	DATE
DIVISION				ADCSCD(R)			
DIR				ADCSCD(J)			
				DCSCD:			
APPROVAL AUTHORITY USE ONLY				CG/DCG/COFS/DCS APPROVAL-DISAPPROVAL			

Figure C-3. Sample HQ TRADOC Form 30 forwarding the MRD (JROC oversight systems) for approval

HQ TRADOC LETTERHEAD	
ATCD-(XX) (MARKS)	DD MM YY
MEMORANDUM FOR HQDA (DAMO-FDJ), 400 ARMY PENTAGON, WASHINGTON DC 20310-4000	
SUBJECT: Mission Needs Statement (MNS) for (name of system)	
1. References:	
a. DODD 5000.1, Defense Acquisition, 15 Mar 96.	
b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.	
c. AR 71-9, Materiel Requirements, 30 Apr 97.	
d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.	
2. Subject proposed MNS (Encl) is submitted for JROC action. The proposed MNS was approved by Commander, TRADOC on (date).	
3. The Point of Contact for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).	
Encl	(DCSCD SIGNATURE BLOCK)
CF: Commander/Commandant of Originating Command/Center/School	

Figure C-4. Sample HQ TRADOC transmittal memorandum forwarding potential ACAT I MNS to HQDA for JROC action

HQ TRADOC LETTERHEAD

ATCD-(XX) (MARKS)

DD MM YY

MEMORANDUM FOR HQDA (DAMO-FDJ), 400 ARMY PENTAGON, WASHINGTON DC 20310-0400

SUBJECT: Operational Requirements Document (ORD) for (name of system)

1. References:

- a. DODD 5000.1, Defense Acquisition, 15 Mar 96.
- b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.
- c. AR 71-9, Materiel Requirements, 30 Apr 97.
- d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.

2. Subject proposed ORD (Encl) is submitted for JROC action. The proposed ORD was approved by Commander, TRADOC, on (date).

3. The following recommendations are furnished:

- a. Program Category: ACAT (XX).
 - b. Materiel Developer: PEO, PM, AMC Major Subordinate Command or other Service.
 - c. Combat Developer: TRADOC.
 - d. Training Developer: TRADOC.
 - e. Logistician: DCSLOG or other Service.
 - f. Operational Tester: USAOPTEC or other Service.
4. The Point of Contact for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).

Encl

(DCSCD SIGNATURE BLOCK)

CF:

Commander/Commandant of Originating Command/Center/School

Figure C-5. Sample HQ TRADOC transmittal memorandum forwarding JROC oversight ORD to HQDA for JROC action

HQ TRADOC LETTERHEAD	
ATCD-(XX) (MARKS)	DD MM YY
MEMORANDUM FOR SEE DISTRIBUTION	
SUBJECT: Mission Need Statement (MNS) for (name of system)	
1. References:	
a. DODD 5000.1, Defense Acquisition, 15 Mar 96.	
b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.	
c. AR 71-9, Materiel Requirements, 30 Apr 97.	
d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.	
2. The approved subject MNS is at enclosure 1. The CARDS reference number is (provided by DAMO-FDJ).	
3. The MNS is forwarded for information/action as necessary.	
4. The Point of Contact for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).	
FOR THE COMMANDER:	
Encl	DCSCD Signature Block for ACAT I OR ADCSCD Signature Block for ACAT II-IV
DISTRIBUTION: COMMANDER, U.S. ARMY MATERIEL COMMAND, ATTN: AMCAQ-PM-TILO, 5001 EISENHOWER AVENUE, ALEXANDRIA VA 22333-0001 Commander/Commandant of Originating Command/Center/School (As a minimum, distribution will be to all agencies which reviewed the draft.)	
CF: HQDA (DAMO-FDJ), 400 ARMY PENTAGON, WASHINGTON DC 20310-0400	

(To be issued by HQ TRADOC after JROC action or after HQ TRADOC approval (for non-JROC oversight MNS).)

Figure C-6. Sample MNS approval announcement memorandum

HQ TRADOC LETTERHEAD

ATCD-(XX) (MARKS)

DD MM YY

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Operational Requirements Document (ORD) for (name of system)

1. References.

- a. DODD 5000.1, Defense Acquisition, 15 Mar 96.
- b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.
- c. AR 71-9, Materiel Requirements, 30 Apr 97.
- d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.

2. The approved subject ORD at enclosure 1 is forwarded for action/information as appropriate. The following information applies to this document:

- a. System Designation: ACAT (XX) and has Congressional, DOD, or DA oversight.
- b. Materiel Developer: PEO, PM, AMC Major Subordinate Command, or other Service.
- c. Combat Developer: TRADOC.
- d. Training Developer: TRADOC.
- e. Logistician: DCSLOG or other Service.
- f. Operational Tester: USAOPTEC or other Service.
- g. CARDS Reference Number: (provided by DAMO-FDJ)

3. The POC for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).

FOR THE COMMANDER:

Encl

DCSCD Signature Block for ACAT I OR
ADCSCD Signature Block for ACAT II-IV

DISTRIBUTION:

COMMANDER, U.S. ARMY MATERIEL COMMAND, ATTN: AMCAQ-PM-TILO, 5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

Commander/Commandant of Originating Command/Center/School

(As a minimum, distribution will be to all agencies which reviewed the draft.)

CF:

HQDA (DAMO-FDJ), 400 ARMY PENTAGON, WASHINGTON DC 20310-0400

(To be issued by HQ TRADOC after JROC action or after HQ TRADOC approval (for non-JROC oversight ORDs).)

Figure C-7. Sample ORD approval announcement memorandum

HQ TRADOC LETTERHEAD	
ATCD-(XX) (MARKS)	S: (30 Days from transmittal date) DD MM YY
MEMORANDUM FOR	
COMMANDING GENERAL, U.S. MARINE CORPS COMBAT DEVELOPMENT COMMAND, ATTN: C 441 (MS. JOINES), 3300 RUSSELL ROAD, QUANTICO, VA 22134-5001 HQ USAF, ATTN: XORD, 1480 AIR FORCE PENTAGON, WASHINGTON DC 20330-1480 CHIEF OF NAVAL OPERATIONS, ATTN: N81, 2000 NAVY PENTAGON, WASHINGTON DC 20350- 2000	
SUBJECT: Harmonization of U.S. Army (ORD or MNS) (Title of MRD)	
1. Subject (ORD or MNS) provided at Enclosure is forwarded for review and harmonization. Your comments, with rationale, will provide input to the Army approval process. Request, as a minimum, you address the following questions in your review/response.	
a. Are there any initiatives under development that could satisfy the need?	
b. Is there a potential for joint participation?	
2. Request input be provided to this office NLT DD MM YY.	
3. Request response include a recommended Joint Potential Designator and be provided in writing to (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).	
FOR THE DCSCD:	
Encl	(DCSCD DIRECTOR SIGNATURE BLOCK)
CF: COMMANDER IN CHIEF, U.S. SPECIAL OPERATIONS COMMAND, ATTN: SORR, 7701 TAMPA POINT BOULEVARD, MCDILL AIR FORCE BASE, FL 33621-5321 COMMANDER, U.S. ARMY SPECIAL OPERATIONS COMMAND, ATTN: AORI-SI, FORT BRAGG, NC 28307	

Figure C-8. Sample draft MNS/ORD transmittal memorandum for interservice harmonization

TRANSMITTAL, ACTION AND CONTROL

CONTROL	SUSPENSE DATE:	CLASS:	DATE: XX XXX XX
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SUBJECT:
(MNS) or (ORD) for (Name of System)

ACTION OFFICE/SYMBOL: ATCD- XX	INFORMATION/ASSIST:	ACTION OFFICER/TELEPHONE: XXXXXXXXXXXXXXXX
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SIGNATURE XXXXXX APPROVAL INFORMATION RESOURCE IMPACT (Y/N) RC IMPACT (Y/N)

XXXXXXXX DCSCD ASGS SGS CSM ACS CS DCG CG, XO CG

PURPOSE: ADCSCD(R) approve (MNS or ORD) for (name of system) and sign distribution memorandum at TAB A.

SUMMARY:

1. (Subject Document) was forwarded to HQ TRADOC for approval on (date), see TAB B (place CMDT's / CDR's forwarding letter and MRD at TAB B). Place **brief** description of system here.
2. An ICT was conducted and there are no remaining issues. (OR, if issues were identified by the CMDT/CDR, explain how they were resolved by the HQ TRADOC Council of Colonels.)

CERTIFICATIONS/DESIGNATIONS:

C4 Certification (from J6): date
 Interservice Harmonization:
 USAF Joint Potential Designator:
 USN Joint Potential Designator:
 USMC Joint Potential Designator:

COORDINATION:
 DCST (ATIC-DMR):
 USANCA:

APPROVAL/RELEASE							
	NAME	INITIAL	DATE		NAME	INITIAL	DATE
DIVISION				ADCSCD(R)			
DIR				ADCSCD(J)			
				DCSCD:			

APPROVAL AUTHORITY USE ONLY CG/DCG/COFS/DCS APPROVAL-DISAPPROVAL

(NOTE: Use MRD example in Figure C-6 or Figure C-7 as TAB A.)
Figure C-9. Sample HQ TRADOC Form 30 forwarding the MRD (non-JROC oversight systems) for approval

HQ TRADOC LETTERHEAD	
ATCD-(XX) (MARKS)	DD MM YY
MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT AND ACQUISITION), ATTN: SARD-RP, 103 ARMY PENTAGON, WASHINGTON DC 20310-0103	
SUBJECT: Request for a Milestone Decision Authority	
1. Enclosed (MNS or ORD) for (name of system) has been approved by the CG TRADOC on (date).	
2. The Joint Potential Designator for this need is (Joint, Joint interest, or Independent).	
3. The CARDS reference number is (provided by DCSOPS).	
4. Request a Milestone Decision Authority (MDA) be assigned to accomplish the Milestone (O or I) actions as defined in the DOD 5000 series. Upon assignment, request this office be notified. Programs resulting from this need are expected to be ACAT (XX) level.	
5. The Point of Contact for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).	
FOR THE DCSCD:	
Encl	(DCSCD DIR SIGNATURE BLOCK)
CF: HQDA (DAMO-FDJ), 400 ARMY PENTAGON, WASHINGTON DC 20310-0400 COMMANDER, U.S. ARMY MATERIEL COMMAND, ATTN: AMCAQ-PM-TILO, 5001 EISENHOWER AVENUE, ALEXANDRIA VA 22333-0001 (if system has C4 implications) DIRECTOR OF INFORMATION SYSTEMS C4, ATTN: SAIS-PP, 107 ARMY PENTAGON, WASHINGTON DC 20310-0107	

Figure C-10. Sample HQ TRADOC transmittal memorandum request for MDA

HQ TRADOC LETTERHEAD	
ATCD-(XX) (MARKS)	DD MM YY
MEMORANDUM FOR SEE DISTRIBUTION	
SUBJECT: U.S. Army Adoption of (other Service) (title of MRD)	
1. References:	
a. DODD 5000.1, Defense Acquisition, 15 Mar 96.	
b. DOD Reg 5000.2-R, Change 3, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, 23 Mar 98.	
c. AR 71-9, Materiel Requirements, 30 Apr 97.	
d. TRADOC Pam 71-9, Requirements Determination, 1 Aug 98.	
2. The (title of MRD (Encl)) is approved as a valid U.S. Army requirement. The following information applies to this document.	
a. System Designation: ACAT (XX) and has (congressional, DOD, or DA) oversight.	
b. Materiel Developer: PEO, PM, AMC Major Subordinate Command, or other Service.	
c. Combat Developer: TRADOC.	
d. Training Developer: TRADOC.	
e. Logistician: USAMSAA or other Service.	
f. Operational Tester: USAOPTEC or other Service.	
g. CARDS Reference Number: (provided by DAMO-FDJ).	
h. U.S. Army Joint Potential Designator: (Joint or Joint interest).	
3. The Point of Contact for this action is (HQ TRADOC CD action officer's name, office symbol, phone number, and e-mail address).	
FOR THE COMMANDER:	
Encl	(DCSCD SIGNATURE BLOCK)
DISTRIBUTION:	
(Core staffing and those who the MRD was staffed with for comment)	
(Other Services)	
(Use core staffing list on the DCSCD Homepage.)	

Figure C-11. Sample U.S. Army adoption of another Service materiel requirement document

Appendix D

Miscellaneous Examples

The following examples are provided:

1. ICT Charter, Figure D-1
2. KPPs, Figure D-2
3. ORD/COIC Crosswalk, Figures D-3-1 and D-3-2

ATCD-MM	Memo Date
MEMORANDUM FOR Integrated Concept Team (ICT) Charter Members	
SUBJECT: ICT Charter for Survivability	
<ol style="list-style-type: none"> 1. Reference memorandum, ATCD-MM, 01 Apr 97, subject: Establishment of Survivability Integrated Concept Team (ICT). 2. Purpose: Identify survivability capabilities across the battlefield systems by phase ((A) Phase I, Battalion Task Force (BN TF). (B) Phase II, Brigade Force. (C) Phase III, Division Force.) and provide prioritization of survivability requirements, materiel, and technology solutions. 3. Scope: This ICT will identify near (FY98-FY99), mid (FY00-FY03), and far-term (FY04>) Army-specific (existing and systems under development and from branch-specific Future Operational Capabilities (FOCs)) Survivability capabilities that can be applied across multiple battlefield systems. The ICT report will focus on force survivability requirements, associated materiel, and technology solutions. 4. Objectives: <ol style="list-style-type: none"> a. Identify and prioritize by phase the total force survivability requirements. b. Identify and prioritize by phase the existing and developmental Army Survivability materiel and technology solutions. 1. Deliverable: A Survivability Requirements Prioritized Report (1 to N listing) to the CG TRADOC that addresses the total force survivability requirements, materiel, and technology solutions by phase. 2. Schedule: Final report is due to HQ TRADOC, DCSCD NLT 30 November 1997 for approval (see enclosed milestone schedule). The final approved report will be presented to the CG, TRADOC NLT mid-November 1997. 3. Organization: This ICT will consist of a chairman, a team leader, and members from the organizations listed below. Members will be designated by the participating and supporting organizations. Membership is by name. Once ICT members are designated by the participating organizations, individuals should not be changed, except for emergency or change of job assignment. 	

Figure D-1. Example of an ICT charter

ATCD-MM	Memo Date
SUBJECT: ICT Charter for Survivability	
<p>a. Chairman: MAJ Randall R. Stevens, Maneuver Division Chief, Combat Arms Directorate, DCSCD, HQ TRADOC.</p> <p>b. Team Leader: MAJ George Conrad, Maneuver Division, Combat Arms Directorate, DCSCD, HQ TRADOC.</p> <p>c. Members:</p> <p>(1) Battle Labs: BLITCD, D&SABL, Mounted BL, Dismounted BL, Air Maneuver BL, and Maneuver Support BL.</p> <p>(2) School DCD: Engineer, Armor, Infantry, Artillery, Air Defense, CASCOM, Military Intelligence, and Aviation.</p> <p>(3) DCSINT</p> <p>1. Other Agencies as required (NGIC, DIA, TARDEC, TACOM, ARL, ARDEC, AMSAA, TRAC, DA, PEO/PMs, Industry).Responsibilities:</p> <p>a. The ICT Chairman shall be responsible for:</p> <p>(1) Execution of the charter.</p> <p>(2) Formation of the ICT.</p> <p>(3) Setting meeting dates, IPRs, and internal product milestones.</p> <p>(4) Ensuring the ICT work environment fosters an atmosphere that promotes crossing organizational boundaries and free flow of dialogue.</p> <p>(5) Reports through the CAD Director to the DCSCD, HQ TRADOC.</p> <p>a. The Team Leader is responsible for:</p> <p>(1) Day-to-day management of the ICT process.</p> <p>(2) Recommending/announcing venues and meeting dates.</p> <p>(3) Conducting/administering ICT meetings.</p> <p>(4) Documenting decisions in minutes and distribution of minutes to the membership.</p> <p>(5) Maintaining the ICT membership listing.</p> <p>a. The ICT members are responsible for:</p> <p>(1) Accepting taskings that require research, writing, and briefing.</p> <p>(2) Actively participating in the ICT by supporting and attending ICT meetings.</p> <p>(3) Completing assigned tasks and providing results on schedule.</p> <p>(4) Keeping their chain of command informed of ICT progress as a condition of being empowered to act on behalf of their organization.</p> <p>(5) Identifying potential good ideas across DTLOMS.</p> <p>1. Duration: This charter is effective upon signature and terminates upon HQ TRADOC approval of the final report.</p>	
Encl as	[DCSCD name] Major General, GS Deputy Chief of Staff for Combat Developments

Figure D-1 (cont.). Example of an ICT charter

Key Performance Parameters (KPPs) from the GRIZZLY Operational Requirements Document (ORD)

*4a(1) GRIZZLY must provide an integrated, survivable breach system. GRIZZLY must provide breach lanes through simple and complex obstacles that allow the supported maneuver force to pass through and accomplish the force's mission. The required probabilities of two GRIZZLYs to successfully breach a lane is 0.95 (threshold) and 0.99 (objective), inclusive of blade and system losses due to mines, but exclusive of losses due to direct and indirect fires.

RATIONALE: GRIZZLY must breach lanes through simple and complex obstacles to allow the heavy maneuver force to conduct Decisive Operations. The probabilities of the GRIZZLY in providing breached lanes are a function of the GRIZZLY's breach capabilities and GRIZZLY survivability to direct and indirect fires, but also the success of the maneuver force at suppressing the enemy (threat) force, obscuring the breach site, and securing the breach site. Accordingly, a separate KPP is provided for system survivability against direct and indirect fires. Nearly all obstacles include mines, so survivability of the system and the blade to mines must be considered. This KPP focuses on the capability of the GRIZZLY to breach obstacles, including mines.

Doctrine calls for two lanes per task force with a recommended allocation of two assets to achieve one lane. The GRIZZLY equipped force must provide the task force a near certainty (a 99% probability) of achieving one lane and a high probability (approximately 90%) of achieving two lanes. Assuming that two GRIZZLYs are allocated to each of two lanes, the threshold value of 0.95 results in a 0.90 probability of successfully breaching both lanes and a 0.9975% probability of successfully breaching at least one of the lanes.

*4a(2) GRIZZLY will provide a lane allowing 95% of the maneuver task force (threshold) and 99% of the task force (objective) to safely pass, excluding losses due to direct and indirect fires.

RATIONALE: Given that the GRIZZLY successfully clears a lane, this KPP expresses the quality of the lane for passing combat forces. Quality is measured by the percentage of the task force successfully passing through the lane. This KPP includes the requirement to clear mines down to the depths required by the ORD and provide lanes of sufficient width to allow passage of the maneuver force.

4c. Survivability.

*4c(1) Provide resistance to perforation of the command and control station (CCS) over a frontal 180 degree arc (threshold) from the RPG system specified on line 8 of the Infantry Weapons Table, page D-2 of the CLASSIFIED Breacher System Assessment (STA) by USAES, dated July 1992. The objective requirement is to provide resistance to perforation of the CCS over a frontal 180 degree arc against a ATGM-type system and the RPG system listed on line 5 of the Infantry Weapons Table, page D-2 of the CLASSIFIED Breacher STA.

*4c(2) Provide resistance to perforation of the CCS against a 6-gun artillery battery, firing a variable time fuze, 10 round artillery salvo of 155 mm M107 high explosive with proximity fuze comparable to the M728 from 7,000 meters (threshold). The objective requirement is to provide resistance to top attack munitions.

RATIONALE: GRIZZLY will operate as part of a combined arms task force. The maneuver commander sets the conditions for breaching success through the execution of the Suppress, Obscure, and Secure fundamentals of breaching. Ideally, direct and observed indirect fires on the breach site are eliminated before the GRIZZLY is committed to execute the Reduce fundamental of breaching operations. Force on force combat simulation and threat assessments predict that the most likely direct fire threat faced by the GRIZZLY will come from dismounted teams providing fires on the obstacle and employing handheld anti-tank weapons (RPG type weapons). The specific nomenclature is not listed to keep this document UNCLASSIFIED.

GRIZZLY is also exposed to indirect fires while conducting the breach. The specified conditions are representative of the type of fire mission expected against the GRIZZLY in the breach. These conditions equate to 60 rounds aimed/targeted at a box approximately 250 meters by 50 meters deep. These parameters will provide the inputs to existing models for development of the specific test parameters to measure compliance with this requirement. It is not intended that testing include the firing of 60 shells.

* = GRIZZLY Key Performance Parameter (KPP)

Figure D-2. Example of KPPs in the ORD

MCS BLK III	
<p style="text-align: center;"><u>ORD CHARACTERISTICS</u></p> <p>COMMON OPERATIONAL PICTURE (COP)</p> <ul style="list-style-type: none"> ✓ Xmit, receive, process Cdrs Sitrep. ✓ Update appropriate databases. ✓ Improve timeliness & accuracy of C2 info. Div & Corps- 85% correct, 2hrs. <p>CONTINUITY OF OPERATIONS</p> <ul style="list-style-type: none"> ✓ After planned move/communications outage: Provide 85% of Cdrs sitrep in 90 min. ✓ After unplanned outage: Provide 85% of Cdrs sitrep in 3hrs. <p>MAINTAIN INTEROPERABILITY</p> <ul style="list-style-type: none"> ✓ USMTF direct computer-computer data exchange. ✓ Exchange data with current joint/combined C3 systems. ✓ Data integrity- 95% threshold. <p>HARDWARE/SOLDIER MACHINE INTERFACE</p> <ul style="list-style-type: none"> ✓ Meet host platform MANPRINT standards. ✓ Operate under all battlefield conditions. 	<p style="text-align: center;"><u>CRITICAL ISSUES & CRITERIA</u></p> <p>1. DOES MCS PROVIDE MANEUVER CDRs/STAFFs INFO REQ. TO ENHANCE DECISION MAKING & SYNCHRONIZATION.</p> <ul style="list-style-type: none"> ☑ Display COP 85% integrity- Div-Corps 2hr/ Bde-Div and adjacent/within echelons 1hr. ☑ Provide timely & accurate info exchange w/majority of users indicating it is better than current system. ☑ Provide CONOPS w/85% data integrity, planned outage 90min, unplanned outage 3hrs. ☑ Interoperate w/computer to computer data/USMTF exchange, & Army/joint/coalition C2 systems IAW UIRs, w/95% integrity. <p>2. CAN UNITS WITH MCS ACHIEVE TRAINING READINESS TO OPERATE/MAINTAIN IT & CAN STAFFS INTEGRATE IT INTO THEIR C2 PROCESS.</p> <ul style="list-style-type: none"> ☑ Training must prepare soldiers to perform all MCS critical tasks. ☑ Users/maintainers w/manuals,tools, & test equip must be able to sustain it for 30 days.
<p>NOTE - MCS BLOCK THREE DOES NOT HAVE DESIGNATED KPP</p>	

Figure D-3-1. ORD/COIC crosswalk, MCS Block III

FBCB2	
<p style="text-align: center;"><u>ORD CHARACTERISTICS</u></p> <p>COMMON SITUATIONAL AWARENESS *</p> <ul style="list-style-type: none"> ✓ Own/friendly/enemy/neutral locations ✓ Standard military map w/operational graphics. ✓ Friendly positions horizontal, 2 echelons up/down. <p>ARMY BATTLE COMMAND SYSTEM INTERFACES *</p> <ul style="list-style-type: none"> ✓ MCS/ASAS/AFATDS (threshold). ✓ CSSCS/FAADC2 & push/pull ATCCS data. <p>UNIT TASK REORGANIZATION *</p> <ul style="list-style-type: none"> ✓ BDE internal: PLT to CO/PLT to BN/CO to BN. ✓ BDE external: PLT to BDE/CO to BDE/BN to BDE. <p>C2 INFORMATION EXCHANGE *</p> <ul style="list-style-type: none"> ✓ 90% msg sent received in: CAT 1- 6 sec, CAT 2- 15 sec, CAT 3- 30 sec, and CAT 4- 15 minutes. <p>HARDWARE/SOLDIER MACHINE INTERFACE</p> <ul style="list-style-type: none"> ✓ 910 hrs MTBFF & 30 mins MTTR. ✓ Meet MANPRINT standards of host platform. ✓ Operable under all battlefield conditions. ✓ Host platform sensors (fuel, ammo,laser,etc) interface. <p>* ORD Key Performance Parameter</p>	<p style="text-align: center;"><u>CRITICAL ISSUES & CRITERIA</u></p> <p>1. DOES FBCB2 IMPROVE BDE TF EFFECTIVENESS BY IMPROVED C2/ FORCE SITUATIONAL AWARENESS?</p> <ul style="list-style-type: none"> ☑ Increase TF lethality, survivability, and reconstitution. ☑ Provide timely info. processing & critical combat info. ☑ Ability to exchange info. with ABCS. ☑ Provide common situational awareness picture. ☑ Reestablish communications after TF reorganization. ☑ Interface with sensors on host platforms. <p>2. IS FBCB2 OPERATIONALLY SUITABLE/ SUPPORTABLE?</p> <ul style="list-style-type: none"> ☑ Provide reliability of 910 hrs MTBF. ☑ Have mean time to repair of 30 min. or less. ☑ BIT/BITE 90% correct with 5% or less false alarms. ☑ Readable display w/mask in combat position on move. ☑ In MOPP/cold clothing reach & operate all controls.

Figure D-3-2. ORD/COIC crosswalk, FBCB2

Appendix E

DTLOMS Determination Analysis

1. Determination of mission need. Future concepts, doctrine, and FOCs guide the way we organize and fight. Analysis must support how we determine FOCs and the most effective way to attain those capabilities. The DTLOMS determination process will analyze the concepts and doctrine to decide whether doctrine, training, leader development, organizations, materiel, and soldiers must play a part in attaining the FOCs. Some of these will require changes, improvements, or development in order to form the basis for future capabilities.

a. DTLOMS determination analysis.

(1) Purpose. Determine the most effective, timely, and least costly means to achieve the FOC. The integrated concept team, or combat developments representative (school or battle lab), is responsible for researching the concepts, S&T research, technology opportunities, and experimentation to identify the possible alternatives that will meet the FOC. The needed changes to DTLOMS support must be clearly identified. If necessary, simulation analysis should support doctrine, organizational, or materiel alternatives. The most effective, timely, and least costly means to achieve the FOC should be chosen for further development and analysis. These results must be documented and supported by the TRADOC proponent (ICT or combat development representative). A combination of DTLOMS changes may be appropriate.

(2) Approved doctrine changes are to be documented in the HQ TRADOC's Doctrine Literature Master Plan (DLMP); training and leadership changes impact the Combined Arms Training Strategy (CATS) program; organizational changes should be documented to HQDA (DCSOPS) through the Structure and Manpower Allocation System (SAMAS) Army Master Force List (MFORCE); soldier changes are made to HQDA (DCSPER) through the Military Occupation Classification and Structure (MOCS). The DTLOS determination documentation should provide the rationale as to why non-materiel options are inadequate, infeasible, or undesirable, and thereby support the Army's rationale for a materiel requirement and a MS 0 materiel acquisition decision.

(3) A materiel requirements solution is initiated only if the FOC cannot be achieved through the other DTLOS. The materiel requirement is refined and identified through analyses and associated reports such as STOs, TDs, ATDs, ACTDs, CEPs, warfighting experiments, ACT II technology demonstrations, threat assessments, and contemporary operational issues. These devices are the needs analyses and are further discussed in Chapters 7 and 8. These analyses continue into the Concept Exploration Phase of the materiel acquisition life cycle and have residual effects out to the Engineering and Manufacturing Development milestone decision (MS II).

(4) While these materiel analyses are exploratory, they support ICT considerations and culminate in the identification of a potential materiel solution which can satisfy an FOC.

It is important for the ICT or combat developments representative to document the analysis that provides analytic underpinning for the materiel requirement discussed in Chapter 11. Results of these analyses must be documented and accompany the MNS. As discussed in Chapter 4, the ICT will need to present the analysis process and study findings (the needs analysis) that resulted in the identification of a need for a materiel development.

b. Technology trade-offs. To support analysis requirements for new materiel, the MATDEV conducts Technology Trade-off Analyses that identify the potential for alternative technologies to meet a need or develop an opportunity. This is early in the development process, the MATDEV investigates a wide range of potential technology solutions from many engineering possibilities. Costs should be considered throughout this process.

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