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***TRADOC Reg 5-11**

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Management

U.S. ARMY TRAINING AND DOCTRINE COMMAND (TRADOC) MODELS AND SIMULATIONS (M&S) AND DATA MANAGEMENT

Summary. This regulation establishes TRADOC policies, procedures, and responsibilities for development and management of TRADOC M&S and data management, and TRADOC's role in the approval of Army M&S requirements.

Applicability. This regulation applies to TRADOC elements.

Supplementation. Do not supplement this regulation without approval from Commander, TRADOC, ATTN: ATAN-SM, Fort Monroe, VA 23651-1048.

Suggested improvements. The proponent of this regulation is the Deputy Chief of Staff for Simulations and Analysis (DCSSA). Send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, TRADOC, ATTN: ATAN-SM, Fort Monroe, VA 23651-1048. Suggested improvements may also be submitted using DA Form 1045 (Army Ideas for Excellence Programs (AIEP).

Availability. This publication is available on the TRADOC Homepage at http://www-tradoc.army.mil and DCSSA Homepage at http://www-tradoc.monroe.army.mil/dcssa/index.htm.

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***This regulation supersedes TRADOC Reg 5-11, 31 Jul 91 and rescinds TRADOC Reg 5-2, 31 May 91.**

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Chapter 1
Introduction

1-1. Purpose. This regulation establishes TRADOC policies, procedures, and responsibilities for development and management of TRADOC M&S and data management, and TRADOC's role in the approval of Army M&S requirements. It provides policy and guidance for the Advanced Concepts and Requirements (ACR) and Training, Exercises, and Military Operations (TEMO) domain agents. It implements Army Regulation (AR) 5-11, related Department of Defense (DOD) and Army Regulations, and DOD Directives (DODDs).

1-2. References. Appendix A contains a listing of required and related publications.

1-3. Explanation of abbreviations and terms. The glossary contains explanations of the abbreviations and terms used in this regulation.

1-4. Management of M&S.

a. AR 5-11 provides information on roles and responsibilities of the Army M&S Management Structure. This structure consists of the Army M&S General Officer Steering Committee (AMS GOSC), Army Model and Simulation Executive Council (AMSEC), AMSEC Working Groups, Army M&S Office (AMSO) and M&S Domains as shown in Figure 1-1.

b. The domain agents and domain managers for the three domains; ACR, TEMO, and RDA (Research, Development and Acquisition) execute the management of Army M&S. Domain managers are designated at the Headquarters, Department of the Army (HQDA) level and domain agents are designated at the major command (MACOM) level. The domain agents and domain managers provide guidance and vision for the domains, identify and coordinate requirements, prioritize investments, and manage the domain's activities in accordance with (IAW) the Domain Management Plan and Domain Investment Plan.

c. TRADOC is designated as the Army domain agent for the ACR and TEMO domains, and the Army Materiel Command (AMC) is the Army domain agent for the RDA domain.

d. The ACR domain's activities include experiments with new concepts and advanced technologies to develop requirements in doctrine, training, leader development, organization, materiel, and soldier (DTLOMS). In addition, the primary products from ACR activities lead to the development and preparation of future land forces by providing the strategic direction, concept

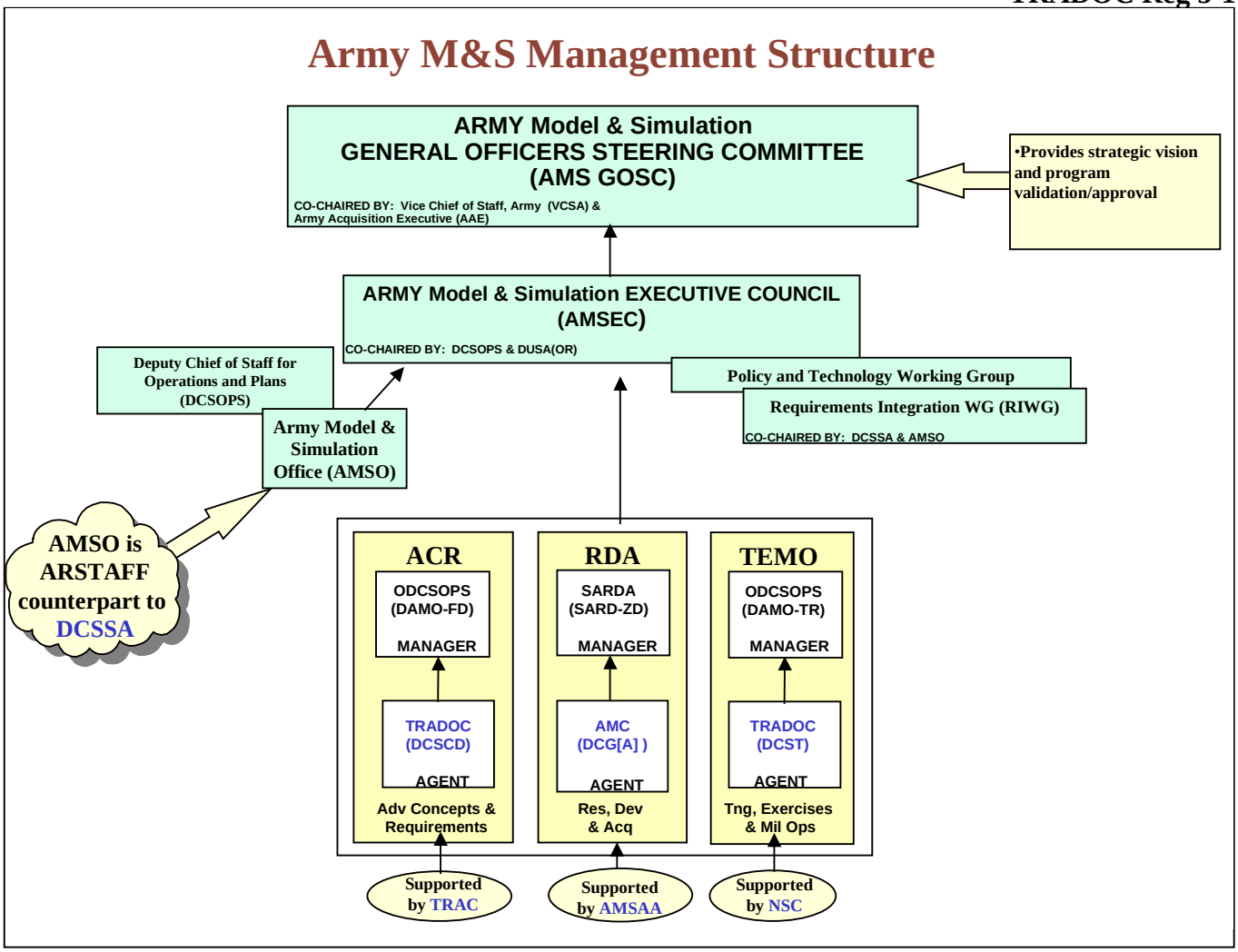


Figure 1-1. Army M&S Management Structure

development, requirements determination and force planning analysis. The ACR domain manager is the HQDA Assistant Deputy Chief of Staff for Operations and Plans (ADCSOPS), Force Development. The ACR domain agent is the Deputy Chief of Staff for Combat Developments (DCSCD), HQ TRADOC.

e. The TEMO domain includes the Active Components, Reserve Components and Army National Guard. The TEMO domain's activities include training at echelons from individual simulation trainers through collective, combined arms, joint, and/or combined exercises. In addition, TEMO includes mission rehearsals and evaluations of all phases of war plans. Included within the TEMO domain are the simulations and simulators that are part of the training aids, devices, simulations, and simulators (TADSS). Training M&S are also subject to the regulatory guidance described in TRADOC Regulation (TR) 350-70 and TRADOC Pamphlet (TP) 71-9. The domain manager for TEMO is HQDA, ADCSOPS, Director of Training. The Deputy Chief of Staff for Training (DCST), HQ TRADOC is the domain agent.

f. The M&S in the RDA domain includes all M&S used for system design, system development, test and evaluation (T&E),

and force modernization. The RDA domain manager is the Assistant Secretary of the Army for Research, Development and Acquisition (ASA(RDA)), Director of Assessment and Evaluation, HQDA. The domain agent is HQ AMC.

g. The Standards Category Coordinator (SCC) executes the management of M&S standards. Standards for M&S cover a variety of topics, and the type and source of relevant standards will vary with each standards category. The Deputy Under Secretary of the Army for Operations Research (DUSA(OR)) approves the designation of the responsible organization to oversee work in their assigned categories. There are 18 standards categories as shown in Figure 1-2 with the designated responsible organization. The SCCs are responsible for executing the Standards Development Process, publishing the SCC Annual Report, and supporting the Army Model Improvement Program (AMIP). Additional information on the SCCs can be found on the internet at the AMSO Homepage http://www.amso.army.mil.

h. Within TRADOC, the forum to address TRADOC M&S issues is the TRADOC M&S Advisory Board ((General Officer/Senior Executive Service (GO/SES level)) chaired by Deputy Commanding General (DCG), TRADOC. The board consists of membership from TRADOC's Deputy Chief of Staffs (DCSs) for Combat Developments, Training, Information Management, Simulations and Analysis, Doctrine, Base Operations and Support, Intelligence, and Resource Management. In addition, Commanders from the Signal Center and Intelligence Center, and Directors of the National Simulation Center (NSC) and TRADOC Analysis Center (TRAC) are board members with participation from other Army agencies and HQ DA. The TRADOC M&S Council (Colonel/General Manager (COL/GM level)) mirrors the board membership and is chaired by the Assistant DCSSA (ADCSSA).

Standards Categories	Responsible Organizations
Acquire	TRADOC
Architecture	AMC
Attrition	AMC
Command Decision Modeling	TRADOC
Control, Communications and Computer Systems Representation	TRADOC
Cost Representation	Cost and Economic Analysis Center (CEAC)
Data	AMC
Deployment/Redeployment	Military Traffic Management Command (MTMC)
Dynamic Environment	AMC
Functional Description of the Battlespace	TRADOC
Logistics	TRADOC
Mobilization/Demobilization	Concepts Analysis Agency (CAA)
Move	US Army Corps of Engineers (USACE)
Object Management	AMC
Semi-Automated Forces	TRADOC
Terrain	USACE
Verification, Validation, & Accreditation (VV&A)	TRADOC
Visualization	TRADOC

Figure 1-2. Standards Categories (Shaded rows indicate TRADOC lead)

Both forums promote a greater interaction and knowledge base of M&S within TRADOC, and ensure the most efficient use of M&S resources. The TRADOC M&S Advisory Board/Council, on an as needed basis, may request representatives from other TRADOC organizations and Army agencies to attend the meetings to address specific issues.

i. The Army Model and Simulation Master Plan provides direction for Army organizations and for supporting management and investment plans. The master plan--

(1) Describes the Army's vision for M&S.

(2) Reviews the Army's M&S management structures and processes.

(3) Details the Army's strategy for achieving the Army's vision.

(4) Provides strategic guidance for M&S managers, developers, and users.

1-5. Objectives of M&S Management.
Collectively, the objectives for M&S management define a set of capabilities and conditions that must exist to achieve the Army's vision for M&S. The principal objectives as listed in the 1998 Army M&S Master Plan are--

a. Develop an effective, flexible set of management tools, i.e., structure, processes, and policies, that facilitates centralized oversight and decentralized execution to deliver relevant M&S capabilities to the Army. Managers of M&S must continue to review and recommend adjustments to the management tools in order to meet the intent of Senior Leadership and the requirements of the domains.

b. Develop an integrated set of approved requirements that describe M&S capabilities sufficient to meet the needs of the force. There is a need to integrate M&S requirements across functional areas to create efficient programs and minimize duplication of effort. M&S requirements must support domain strategies for mission accomplishment across their functional areas.

c. Fund programs that efficiently deliver M&S capabilities necessary to meet the most critical needs of the force. IAW the Domain Management Plan and Investment Plan, the Domain managers must prioritize the set of sufficient requirements to ensure resources are allocated against only those requirements that are necessary to meet the most critical needs of the force.

d. Develop a comprehensive set of standards that facilitates efficient development and use of M&S capabilities. With the advances in information technology and the requirement for closer integration with Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems, these standards must evolve to maintain efficient M&S development and support for the force.

e. Develop M&S with an efficient set of related infrastructure to meet developer and end-user needs. The Army definition of M&S infrastructure distinguishes between assets managed by the M&S management structure and assets managed by organizations as part of their mission support infrastructure.

f. Establish a broad community of M&S managers, users, and developers with sufficient understanding of Army M&S to make informed decisions about the effective use of Army M&S capabilities. The goal of educating the force is to ensure that people who make decisions about the investments, uses, and development of Army M&S capabilities have sufficient knowledge to create and execute efficient and effective M&S programs.

1-6. Responsibilities.

a. DCG, TRADOC will--

(1) Approve all Army M&S requirements.

(2) Chair the Army Requirements Integration Council (RIC) and TRADOC M&S Advisory Board.

(3) Represent TRADOC on the AMSEC and AMS GOSC.

(4) Serve as the Functional Manager for the Advanced Simulations Program (ASP) (formerly Distributed Interactive Simulation (DIS)).

(5) Prioritize resources for TRADOC M&S across the ACR and TEMO domains.

b. DCSSA will--

(1) Serve as the cross-domain coordinator for integration and approval of Army M&S requirements.

(2) Provide policy, procedures and guidance for M&S requirements determination, integration and approval.

(3) Serve as the TRADOC staff proponent for M&S.

(4) Develop, execute and update, as needed, the Army Requirements Integration and Approval (RIA) process discussed in Chapter 2.

(5) Provide technical staff support to DCG, TRADOC and the HQ TRADOC DCSs on TRADOC M&S issues.

(6) Co-chair the Requirements Integration Working Group (RIWG) with the AMSO. Provide support to AMSO in the identification, integration and validation of cross-domain M&S requirements.

(7) Serve as primary alternate to the AMSEC and AMS GOSC when DCG, TRADOC is unavailable to attend.

(8) Monitor key simulation programs that span training, combat developments, and doctrine development.

(9) Provide oversight for TRADOC Simulation Technology (SIMTECH) Program and AMIP project submissions. Monitor TRADOC's SIMTECH/AMIP projects to ensure obligation of the funds once they are approved by the DUSA(OR).

(10) Convene TRADOC M&S Advisory Board to address TRADOC M&S issues, as required.

(11) Represent TRADOC at appropriate subcommittee meetings (e.g. Policy and Technoloy Working Group) and special emphasis subcommittees of the AMSEC.

(12) Serve as Action Office for the DCG, TRADOC as the Functional Manager for the ASP.

(13) Serve on M&S Integrated Concept Teams (ICTs), as required. Additional information on the purpose, formation and documentation of ICTs is in Appendix B.

c. DCSCD and DCST, as the TRADOC M&S domain agents, will provide guidance and manage the domain's activities IAW the responsibilities defined in AR 5-11 and appropriate Domain Management and Investment Plans. DCSCD and DCST will--

(1) Coordinate and manage domain M&S activities, develop and maintain supporting plans for their domains to include Domain Management Plans and Domain Investment Plans.

(2) Develop a domain requirements process that gives visibility to all M&S activities within the domains, including a domain M&S requirements database.

(3) Document the domain requirements process in the Domain Management Plan, and the investment strategy for approved requirements in the Domain Investment Plan.

(4) Compile, evaluate, and validate the domain's M&S requirements for intra-domain integration and cross-domain synchronization using the domain's requirements process.

(5) Submit the domain M&S require-ments for integration and approval through the Army M&S RIA process.

(6) Provide one representative (Lieutenant Colonel (LTC)/COL or civilian equivalent) to the RIWG and one representative GO/SES to the RIC.

(7) Serve as the accreditation authority for class accreditation of M&S applications. In accomplishing this responsibility, the domain agents will convene an accreditation team, consisting of appropriate subject matter experts (SMEs) associated with the major M&S functional areas being reviewed, e.g., Combined Arms Support Command (CASCOM) for combat service support (CSS).

(8) Serve on the M&S ICTs, as required.

d. TRADOC SCC IAW the responsibilities defined in AR 5-11 will --

(1) Support the domains in the identification of specific domain requirements.

(2) Gather, evaluate, prioritize, and submit AMIP project nominations directly to AMSO. TRADOC SCCs will provide copies of the TRADOC AMIP project nominations to DCSSA.

(3) Submit to DCSSA a copy of the annual SCC report that provides the status of standardization within assigned categories.

(4) Establish at least an Internet File Transfer Protocol (FTP) site, bulletin board system (BBS), World Wide Web (WWW) home page, or a combination of these capabilities to facilitate the work of coordinating standards between SCCs and the M&S community.

(5) Serve on M&S ICTs, as required.

e. Commanders, major subordinat commands (MSC); Commanders and Commandants of TRADOC Installations and Centers; and the approval authority/agency head at other TRADOC elements (for example Dir, TRAC and Dir, NSC) will--

(1) Serve as the TRADOC M&S Proponent and V&V Proponent for individual M&S applications within their areas of responsibility.

(2) Develop and execute a viable strategy for development and maintenance throughout the life cycle of the M&S. The actual execution of M&S development, configuration management, V&V, and maintenance may be delegated.

(3) Serve as the approval authority for the release of M&S for which they are proponent to other U.S. government agencies, U.S. contractors and Federally Funded Research and Development Centers (FFRDCs). Designation of release approval authority can be delegated to lower levels as defined in Figure 5-1. IAW AR 5-11, the DUSA(OR) is the final approval authority for the release of M&S to foreign governments or international organizations.

(4) Conduct a periodic review of the M&S configuration management program to ensure compliance with the requirements of this regulation and pertinent DOD, HQDA, and military standards (MIL-STDs).

(5) Ensure that new TRADOC M&S software development complies with current DOD, HQDA, and MIL-STDs.

f. Dir, TRAC in addition to the responsibilities in paragraph e above, will--

(1) Provide VV&A technical guidance to TRADOC elements.

(2) Support the combat developer, training developer, and Battle Laboratories (Battle Labs) with constructive and virtual simulations, and analyses as tasked through the AR 5-5 Study Program.

(3) Manage and act as the central point of contact (POC) for all TRADOC study data requests that require support from data sources outside of TRADOC. When appropriate, authorize release of that data to other government agencies outside TRADOC subject to restrictions imposed by HQDA regulations. Coordinate with TRADOC Deputy Chief of Staff for

Intelligence (DCSINT)-Threat Support Directorate (DCSINT-TSD) for threat/opposing force (OPFOR) data support.

(4) Coordinate the review and certification of data requests by appropriate TRADOC elements and HQDA (if required).

(5) Provide oversight of data used in the study certification process. The oversight responsibility includes a review/critique of the data, identification of the possible misuse of the data, and provision of solutions to data voids and data conflicts. Coordinate, when appropriate, data issues with the data providers.

g. Dir, TRADOC DCSINT-TSD, will--

(1) Serve as the TRADOC Threat Coordinator for integration and approval of threat/OPFOR for TRADOC M&S requirements.

(2) Provide threat VV&A for threat/OPFOR portrayal in TRADOC M&S.

(3) Serve on M&S ICTs, as required, for threat.

(4) Provide staff support to TRADOC organizations.

(a) Manage and act as the central POC for all TRADOC threat study data requests to include certification of threat/OPFOR data requests.

(b) Conduct the review and certification of threat/OPFOR data requests by appropriate TRADOC elements and HQDA, if required. Inform data requester of issues that surface or of any changes made to the data request. Forward the coordinated and certified data request to Dir, TRAC and the data provider as appropriate.

(c) Provide TRADOC oversight of threat/OPFOR data used in the study certification process. The oversight responsibility includes a review/critique of the data, identification of the possible misuse of the data, and provides solutions to data voids and data conflicts. Coordinate, when appropriate, threat data use issues with Dir, TRAC and the data providers.

(d) Maintain a list of approved threat/OPFOR data sources for TRADOC. This information is available from the TRADOC DCSINT-TSD, Fort Leavenworth.

(5) Ensure threat/OPFOR certification with intelligence authorities as required for weapons systems performance data and documentation of data for use.

(6) Submit recommendation and provide guidance to M&S proponents on required threat/OPFOR related portrayal enhancements to M&S, M&S review efforts, and study development.

(7) Provide threat/OPFOR representation to M&S user groups.

h. TRADOC M&S users, to include government activities and contractors (as appropriate) with access to or use of TRADOC M&S, will--

(1) Identify and submit all M&S requirements to appropriate M&S domain agents IAW the domains' requirements processes, i.e., ACR M&S requirements to the ACR Domain Agent, TEMO M&S requirements to the TEMO Domain Agent, and RDA M&S requirements to the RDA Domain Agent.

(2) Participate as a member of M&S User Groups.

(3) Provide M&S input information on the benefits of TRADOC M&S when requested annually by DCSSA.

(4) Share all enhancements and modifications with other M&S users, when appropriate.

(5) Obtain model and simulation accreditation for each specific application.

(6) Report all errors in the code or data to the M&S proponent as soon as possible but no later than 30 days after detecting the error. An example of an error report is at Appendix C.

(7) Notify the M&S proponent of the intent to modify the M&S within 30 days of identifying the need to modify for a specific application (see Appendix D).

(8) Provide the M&S proponent with a modification/enhancement report no later than 30 days after the modification/enhancement proves appropriate for use in a specific application (see Appendix E).

(9) Benchmark any modified version of the analytical M&S with the approved reference version. Provide the results of the benchmark to the M&S proponent for information when requested.

1-7. Types of M&S. This regulation applies to all TRADOC M&S developed, used, and maintained by TRADOC elements. It includes those developed by a non-TRADOC organization or contractor to meet a TRADOC requirement. Not all M&S require the same level of configuration management, VV&A, or other standards. The M&S proponent and accreditation authority will determine the appropriate level of adherence to these policies. The management decision is dependent on the importance of the applications for the M&S tempered by the available resources. The types of M&S include, but are not limited to,
the following--

a. TRADOC M&S used in support of combat development studies and analyses, and other studies in support of materiel acquisition programs.

b. TRADOC M&S used in support of training commanders and their staff elements in battlefield command and control, and combat support/combat service support management.

c. TRADOC M&S which are part of the AMIP and SIMTECH Programs.

d. TRADOC M&S used in support of operational test and evaluation.

e. TRADOC M&S used in developing future operational combat/combat support/combat service support concepts, scenarios, tactics, and doctrine for the Army.

1-8. Technical Standards for TRADOC M&S.

a. DOD and Army M&S guidelines and standards for system development and acquisition govern TRADOC M&S. All TRADOC M&S activities must adhere to these policies and standards. DODD 5000.59 establishes DOD policy, assigns responsibilities, prescribes procedures for the management of M&S and establishes the Defense M&S Office (DMSO). DMSO is the DOD focal point for M&S.

b. The Joint Technical Architecture – Army (JTA-Army), formerly the Army Technical Architecture (ATA), provides the foundation for a seamless flow of information and interoperability among all tactical, strategic, and sustaining base systems that produce, use or exchange information electronically. Systems developers will ensure that all M&S will be compatible with the JTA-Army as required by AR 5-11. Purpose is to ensure that products meet interoperability, performance, and sustainment criteria. Combat and training developers will use the JTA-Army in developing requirements and functional descriptions. Battle Labs will use the JTA-Army to ensure that the fielding of their "good ideas" is not unduly delayed by the cost and time required for wholesale re-engineering to meet interoperability standards.

c. The Under Secretary of Defense for Acquisition and Technology (USD(A&T)) designated the High Level Architecture (HLA) as the standard technical architecture for all DOD simulations in a policy memorandum, DOD High Level Architecture (HLA) for Simulations dated 10 September 1996. This mandate for HLA compliance supersedes all previous requirements for DOD simulations to comply with other

simulation standards such as DIS or Aggregate Level Simulation Protocol (ALSP). Specific guidance on HLA is described in the policy memorandum and HLA transition report, DOD

Transition to the High Level Architecture (HLA) for Simulations dated March 1998.

c. The Army M&S Master Plan describes the Army Standards Development Process. The standards development process is consensus based and is focused by the Standards Category Coordinators. TRADOC fully supports the Army process and the use of its products.

Chapter 2
The Army M&S Requirements Integration and Approval (RIA) Process

2-1. General. The Chief of Staff of the Army (CSA) appointed the Commanding General (CG), TRADOC as the Army's approval authority for all Army warfighting requirements. CSA directed all Army staff to support TRADOC in this mission as described in TRADOC Black Book 3, Requirements Determination. The authority to approve Army M&S requirements is delegated to the DCG, TRADOC. AMSO and DCSSA have developed the Army M&S RIA process. It is through this process that DCG, TRADOC with support from the RIWG and RIC will execute the mission for the approval of Army M&S requirements.

2-2. Scope. The responsibility of CG, TRADOC to approve all warfighting require-ments extends to all M&S requirements across the live, virtual, and constructive simulation environments as documented in AR 5-11. The RIA process is an Army process and applies to the three M&S domains (ACR, RDA and TEMO).

2-3. Concept. The Army M&S RIA process, depicted in Figure 2-1, addresses all M&S requirements to include those that do not fall under the standard materiel acquisition process and thus do not require a Mission Need Statement (MNS) and Operational Requirements Document (ORD). The intent of the process is to ensure all M&S requirements have been validated and reviewed for integration with other programs prior to approval, to avoid duplication, and to identify voids in supporting DOD and HQDA M&S visions and strategies. The goal is to minimize the time and dollars spent to meet requirements. The process allows for multiple levels of review for various categories of M&S requirements.

a. M&S Programs Requirements. The RIA process begins with user organizations through-out the Army determining their requirements for M&S capabilities. When a user first identifies a requirement, he or she may work with M&S technical experts to translate an operational requirement into an M&S requirement. In some situations, ICTs are formed to allow M&S representatives with multiple perspectives to develop and/or review a requirement. All requirements are then submitted via the appropri-ate domain-specific process to the domain agent. Requirements may fall within one of two categories: those requirements that meet the criteria in TRADOC Pam (TP) 71-9 for MNS/ORD and "other M&S" requirements. Cross-domain requirements may occur in either category.

(1) M&S requirements that meet the guidelines of the traditional acquisition process as described in the DOD Regulation 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems Acquisition Programs, will be documented and staffed for approval in a MNS and ORD. The requirements will be submitted to the RIWG for review per the staffing guidelines and format provided in TP 71-9.

(2) Many M&S requirements do not fall within the scope of guidelines provided in the DOD Regulation 5000.2-R. These requirements are staffed and approved as "other M&S" requirements. Other M&S requirements are documented in the M&S Requirements Document (MSRD) unless special circumstances indicate the need for a MNS/ORD. ODCSSA will provide assistance in determining the proper documentation format when requested. The

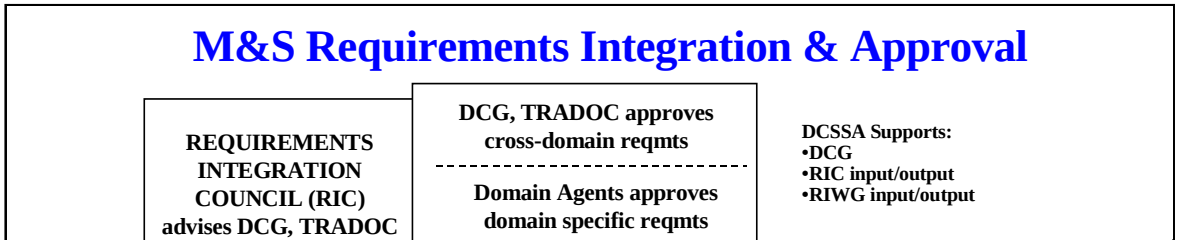


Figure 1-1. Army M&S Management Structure

MSRD is staffed with the RIWG prior to submitting the requirements for an approval decision IAW TP 71-9. The format for the MSRD is at Appendix F. Other M&S requirements include requirements for M&S to support Advanced Warfighting Experiments (AWEs), Advanced Technology Demonstrations (ATDs), Special Exercises, or acquisition-relatedevents documented in Simulation Support Plans (SSPs).

b. Cross-domain M&S requirements support the identified need that falls within two or more of the domains. Cross-domain requirements may be identified in two ways:

(1) During the development of the domain's requirements.

(2) Identified initially as a cross-domain requirement and submitted directly to the RIWG. Cross-domain requirements will be documented in a MSRD (or MNS and ORD) that is submitted to the RIWG for entry into the RIA process.

c. Activities outside the M&S community may approve programs with embedded requirements for M&S (e.g., Advanced Concepts and Technology II (ACT II) Programs or Technology Base Programs). Proponents for these programs must identify support M&S requirements and submit them to the appropriate M&S domain agent for approval consideration as defined by the RIA process.

d. ICTs allow M&S representatives with multiple perspectives to develop and/or review a M&S requirement. When the user first identifies a requirement, he/she works with the M&S technical experts to translate an operational requirement into an M&S requirement. Determination of when to convene an M&S ICT depends on the requirement.

2-4. M&S Requirements.

a. An M&S requirement is defined as the modifications or development of a new tool or capability or significant enhancement to an existing tool or capability used in computer based simulation of military operations, or processes that contribute to military operations. Examples of military operations or processes for which M&S are required include, but are not limited to, designing, analyzing, testing/evaluating, assessing,

producing, sustaining military systems/processes, and providing training, exercise support, military operations support, planning tools, and mission rehearsal tools to support soldiers and units.

b. The rapid shifts in force structure, doctrine, and systems leading to Army XXI and Army After Next implies many new requirements for M&S. Unless requirements are identified, developers will be unable to provide the needed tools to support the force.

c. Requirements must support domain strategies for mission accomplishment across their functional areas. Domain managers and agents must establish processes for integrating requirements within domains and across domains. The domain managers must prioritize requirements IAW the Domain Management Plan and Investment Plan to ensure resources are allocated against only those requirements that meet the most critical needs of the force. It is unlikely that all approved requirements will be funded, so associated risks must be identified.

d. While M&S programs are managed by the three domains, they are funded in six Program Evaluation Groups (PEG). Some M&S programs are funded through individual program elements while others fall under a major program or mission support element. The DOD policy of cost as an independent variable (CAIV) applies to M&S investments as well as major systems. Investment managers must prioritize requirements against their funding profile.

2-5. Process Planning. Each domain will have its own policy and process for submission, review, and integration of the domain's M&S requirements. The domain agent will provide the domain's policy and process to the domain members, domain managers, M&S evaluators for communication requirements and M&S integration offices (AMSO and DCSSA).

a. The three domains: ACR, RDA, and TEMO, will develop their own M&S requirements based on the M&S User's quirements within the functional domains. The domain agents will submit the M&S requirements for review by the RIWG through DCSSA. The RIWG will refer them to the RIC if appropriate. DCSSA will coordinate the review of cross-domain requirements.

b. DCSSA and AMSO chair the RIWG that reviews the M&S requirements. Cross domain requirements and the requirements with issues are submitted to the RIC for consideration. DCG, TRADOC chairs the RIC and approves the cross-domain requirements for submission to HQDA (AMSO). Approval of domain specific requirements may be delegated to the domain agent.

d. Communications requirements must be fully considered in the M&S requirements determination process. Communications requirements will be addressed by an annual data call for the domain's communications requirements conducted by the domain agents. The ACR and TEMO domain agents will submit annually (15 Dec) a consolidated list of communications requirements to DCSSA with copies to the Deputy Chief of Staff for Information Management (DCSIM) and Signal Center.

Chapter 3
Verification, Validation, and Accreditation (VV&A)

3-1. General.

a. This chapter provides VV&A policies and procedures for M&S as prescribed by DODD 5000.59, Department of Defense Instruction (DODI) 5000.61, and DA Pam 5-11. VV&A will be accomplished in concert with, and as part of, the overall configuration management for individual M&S. This regulation reflects HQDA and DOD guidance.

b. The credibility of models and simulations is determined by verification and validation (V&V), and approved as adequate for use in a particular application by accreditation. Verification focuses on the capability of the M&S, whereas validation focuses on the credibility of the M&S.

Accreditation is a decision that a specific M&S can be used for a specific application, based on the intended use of the M&S. Each application has a different set of requirements and detailed acceptability criteria. Changes to M&S may affect the M&S suitability for a particular application. Previous VV&A results should be reviewed to determine the impact of these changes on the credibility of the M&S. The entire process is known as VV&A.

c. The M&S proponent IAW AR 5-11 is responsible for ensuring that V&V are done but may delegate execution of all aspects of V&V to a designated agency. The M&S application sponsor is responsible for the accreditation of the M&S with assistance from the V&V proponent.

d. The Army shall be the final authority for validating representations of its own forces and capabilities in joint, general and common-use applications and shall be responsive to the other services and defense agencies to ensure that its forces and capabilities are appropriately represented. Army developers of M&S that represent the activities of other services will coordinate the VV&A with that DOD component.

e. The applicable Army application sponsor will accredited M&S used specifically to support major DOD decision making organizations and processes (such as the Defense Planning and Resources Board (DPRB), the Defense Acquisition Board (DAB), the Joint Requirement Oversight Council (JROC), and the DOD Planning, Programming, and Budgeting System (PPBS).

f. M&S that are developed or used by non-DOD Government organizations, contractors (including FFRDCs), academic institutions, and any other non-DOD organizations in support of DOD activities shall comply with DOD VV&A policies and procedures. The DOD component sponsoring the non-DOD M&S application is responsible for ensuring compliance with established VV&A policies and procedures.

g. For an Army agency designated as a DOD M&S Executive Agency (MSEA), the Army Agency will follow Army VV&A policies and procedures for that M&S application unless otherwise specified by the USD(A&T).

h. AMSO is designated as the Army's DOD VV&A focal point. AMSO will serve as the authoritative, single point of contact for DOD and non-DOD activities concerning the data and information on Army VV&A policies, procedures, and practices, VV&A results, and accreditation documentation. AMSO may delegate specific responsibilities to other agencies.

3-2. Concept.

a. VV&A increases confidence, credibility, understanding, and integrity of M&S within the confines of the intended use of the M&S. Credible tailoring of V&V activities to specific M&S applications requires a clear understanding of V&V techniques and their contributions to M&S credibility, and a knowledge of the M&S functions relative to the problem's solution. The problem that needs to be solved is usually called the application.

b. VV&A is a continuous process performed throughout the entire life cycle of an M&S application. VV&A activities conducted throughout the M&S life cycle are intended to reveal deficiencies that might be present as development progresses from problem definition to the analysis of results. Careful planning is required for successful VV&A efforts. Test should be identified, test data or cases should be prepared, tests should be scheduled, and the whole VV&A process should be documented.

c. VV&A activities will include an assessment of the representations of concepts, tactics, and doctrine, from both friendly and threat/OPFOR perspectives. TRADOC DCSINT-TSD (and other intelligence authorities, if required per AR 381-11) will perform VV&A of threat/OPFOR to ensure conformance with intelligence positions and assessments.

d. VV&A for a federation of M&S will adhere to not only the general VV&A policies and

procedures for each individual M&S, but will also consider system compliance, compatibility, and interoperability requirements. VV&A of a federation will ensure credible results of the integrated system as a whole. Each unique application configuration of a federation requires VV&A.

e. For V&V purposes, legacy M&S are those M&S developed prior to June 1992, which are still in use but were not implemented using today's V&V standards. V&V for legacy M&S are strongly encouraged and should be accomplished as appropriate, considering future applications, availability of resources, and future M&S replacements for the legacy M&S. V&V of major modifications to legacy M&S begun after June 1992 are required. Accreditation of legacy M&S does not differ from that of newly developed M&S.

3-3. Verification and Validation.

a. Verification is the process that determines that the M&S functions as it was originally conceived, specified, and designed. An agent who is independent from the M&S developer should perform verification. However, it is recommended that the M&S developer conduct in-house verification and testing to assist in the overall M&S development process.

b. Validation is the process of determining the credibility of the M&S and M&S groups (e.g., HLA federations) in the depiction of the real-world. The validation process ranges from single modules to the entire system. The ultimate purpose is to validate the entire system of M&S, including data. Validation methods will incorporate documentation of procedures and results of all validation efforts to assist in the accreditation of M&S.

c. The V&V proponent may be the same as M&S proponent. In special cases, an appropriate authority may appoint a V&V proponent different from the M&S proponent.

3-4. Accreditation.

a. Accreditation is the official determination that a model, simulation or federation of M&S is acceptable for its intended use. Accreditation is the M&S application sponsor's responsibility with assistance from the V&V proponent. The specific use of the M&S must be considered in context with its capabilities and limitations.

b. Each specific application of M&S requires accreditation. The application sponsor will accredit the M&S for the specific application. The application sponsor will ensure that the M&S, as modified by scenario, data, or other changes, will provide the results which respond to the essential elements of analysis. The accreditation agent, assisted by the V&V proponent, will provide the application sponsor with the information required for M&S accreditation.

c. An Army agency responsible for the application of a federation of M&S also has accreditation responsibility. Each of the M&S federation elements within the federation may undergo V&V according to the owning Service's V&V policies and guidelines, but the Army agency application sponsor is responsible for the overall federation accreditation.

d. An M&S may be accredited for a generic set of applications, e.g. DCSCD and DCST in the role as domain agents, may accredit an M&S for the general class of applications, subject to approval by the AMSEC. Although an M&S may be granted this generic class accreditation, each specific usage of that M&S still requires accreditation by the specific application sponsor. Each specific application can use the class of application decision as a baseline for focusing VV&A effort on the unique aspects of the application.

e. The accreditation process begins with the determination of accreditation requirements, based on the acceptability criteria developed in selecting the M&S approach. The V&V requirements are determined first by defining the key M&S functions derived from the acceptability criteria. These key functions are prioritized in order of importance to the application.

f. Other accreditation requirements include M&S characteristics that can affect the decision for the approval and use, e.g. M&S developments and use history, operational environment requirements (hardware configuration, software support environment, personnel, security), configuration management status, documentation status, and known limitations.

3-5. Reaccreditation. The process for reaccreditation is identical to the process for initial accreditation except that more information may be available upon which to base the reaccreditation decision. IAW AR 5-11, if the AMSEC has approved the M&S for a generic set of applications, then the M&S will be subject to reaccreditation when--

a. The M&S is proposed for a new type of application.

b. A new reference version of the M&S is released.

c. A period of three years of active use has passed since the last accreditation for the M&S.

3-6. VV&A for Distributed M&S.

a. Distributed system of M&S include application of HLA, DIS, M&S linked by ALSP, and other M&S architectures which contain distributed components that make up an overall M&S. VV&A planning should begin in the early stages of development.

b. The M&S sponsor (trainer, experimenter, or analyst) must examine the requirements for the application and identify candidate M&S for inclusion in the distributed architecture. Once the architecture is defined, it can be treated as a single M&S that has been functionally decomposed for V&V. Each component of the distributed M&S must be individually verified and validated as well as the entire system to ensure that the overall system produces the intended results when the individual components are correctly interfaced together. V&V will assess the overall performance, credibility, and realism of the integrated system operating as an entity.

c. V&V of the individual components of the distributed M&S are the responsibilities of the M&S proponents. An appropriate Army authority will designate an overall V&V proponent for the distributed M&S as a whole. The M&S proponents must be able to assist in all VV&A activities. The M&S application sponsor remains responsible in all cases for the accreditation of the system.

3-7. Documentation of the VV&A Process.

a. The M&S proponent is responsible for the V&V methodology and V&V program for the reference version of the M&S. The V&V agent will prepare the V&V plan and report documentation. Detailed VV&A documentation procedures and methodologies can be found in the DA Pam 5-11 and the DOD VV&A Recommended Practices Guide, November 1996.

(1) The V&V plan is the road map for the V&V agent. The plan outlines the approach that will be taken to accomplish V&V, the agencies involved in the V&V process, along with their roles and responsibilities. It must be coordinated with all agencies that will expend any resources or have any responsibilities in the V&V process. The M&S proponent approves the V&V plan and report. Each plan must address the requirements and constraints of the M&S application and covers critical issues, while allowing flexibility for adjustment and refinement.

(2) The V&V report contains a detailed description of the V&V processes that were conducted and the results of the V&V effort including the capabilities and limitations. The report must be coordinated with all agencies involved in the process.

b. The accreditation plan defines the intended use of the M&S for which accreditation is being sought and it outlines the approach that will be taken to assess the capabilities and limitations of the M&S.

(1) It will contain the membership of the accreditation team, resources, milestones, documentation required (e.g., current

configuration, past V&V efforts, post-V&V) acceptability criteria, and proposed accreditation methodology to include data verification, validation, and certification (VV&C). The accreditation plan must be coordinated with all agencies that will expend any resources or have any responsibilities in the accreditation process.

(2) The accreditation agent will provide the accreditation plan and report to the M&S proponent and the application sponsor. A copy of the accreditation report will be forwarded to AMSO who will keep a record of the M&S accredited.

3-8. Funding.

a. M&S developers, users, and proponents will identify resources required to perform VV&A in the Command Operating Budget (COB) submissions as a part of the resource requirements for M&S development and maintenance.

b. Contractor developed M&S will identify V&V costs in the acquisition strategy for contractor developed M&S.

c. Each M&S activity contained in Management Decision Packages (MDEPs) will establish a separate line reflecting V&V to gain funding visibility.

Chapter 4
Configuration Management (CM)

4-1. Objective. The objective of CM is to improve the consistency and reliability of M&S. IAW Army and DOD guidelines, CM will be applied throughout the life cycle of all M&S to ensure continuing operational consistency. The CM effort includes identifying, documenting, and verifying the functional and physical characteristics of an item; recording the configuration of an item; and controlling changes to an item and its documentation. The CM provides an audit trail of everything that happens during the M&S life cycle. Commercial standards comparable to MIL-STD-498 will be used for software development and documentation; commercial standards comparable to MIL-STD-973 will be used for CM.

4-2. Policy.

a. The M&S proponent is responsible for, but may delegate execution of, CM. This responsibility may be delegated to the M&S developer. The application of CM will be tailored to the life cycle phase, complexity, size, intended use (including joint and combined interoperability), mission criticality, and logistics support of the M&S. See Appendix G for additional information on M&S documentation requirements and guidelines.

b. CM is an integrated process encompassing hardware, software, and firmware. AR 5-11, DODD 5000.1 and DOD Regulation 5000.2-R provides guidance for the Army's CM activities to include M&S Users Groups.

c. The M&S proponent and/or designated M&S configuration manager will coordinate information about proposed and approved modifications to their M&S system architecture with DCSIM. The required information is as follows:

(1) Impact of proposed and approved modifications to M&S on TRADOC installations' communications environment. Document IAW commercial standards comparable to MIL-STD-498, System/Subsystem Specification. Include impact on geographic locations to be linked, network topology, transmission techniques, data transfer rates, gateways, required system use times, type and volume of data to be transmitted and received, time boundaries for transmission, reception and response, peak volumes of data, diagnostic features, and security classification.

(2) Impact of proposed and approved modification to M&S on TRADOC installations' computer processing environment. Document IAW commercial standards comparable to MIL-STD-498, System/Subsystem Specification. Include impact on quantity, type and placement of processor peripherals and communications interface devices.

Chapter 5
Data Management

5-1. General.

a. Data management addresses the management of manually processed and automated data from data modeling to the data element level. Data management requires the active involvement of both functional experts and materiel developers. AR 25-1 governs the Army Data Administration Program that implements the information standards portion of the JTA-Army. The Army Data Administration Program establishes the necessary framework for identifying, organizing, and managing Army data to support the development and implementation of information systems which are interoperable within and among the tactical, strategic and sustaining base environments.

b. Proper data management assists the Army in understanding what the information requirements are, where official Army data is maintained, and who uses the data. Data management applies to data required to support studies conducted under the provisions of AR 5-5, and addresses the development and maintenance of M&S data IAW AR 25-1 and DODD 8320.1. Additionally the Authoritative Data Source (ADS) project assists the Army users in identifying and obtaining data sources and products.

c. Studies are organized analytic assessments used to understand or evaluate complex issues. They are also used to improve policy development, decision-making, management, and administration. The application of a model to a study includes preparation of input data, technical analysis of output for system and data errors, and interpretation of output for study analysis.

5-2. Data Responsibilities.

a. M&S User.

(1) The M&S user is responsible for obtaining Army standard data for use with any M&S. The M&S user must request and receive data from approved data sources

(2) DCSOPS has delegated the Army Training Support Center (ATSC) as the Component Functional Data Administrator (CFDAd) for institutional training, individual unit proficiency and training support. The M&S user must coordinate the use of Army training data elements with ATSC. The CFDAd provides support for the integration and standardization of data for all Army training systems.

b. Sponsor's Study Director (SSD).

(1) The SSD is responsible for determining the data requirements for the study. Each SSD will define data requirements and delivery milestones, coordinate data request with all participating study agencies, document the origin and use of all data acquired for the study, and ensure that the data provided is used correctly.

(2) The Study Sponsor (SS) appoints the SSD, i.e. the MACOM commander or agency head that is sponsoring the study. The SSD is responsible for ensuring that the study objectives are met, represents the SS in establishing the requirements for the study, provides technical direction for the SS and performs actions during each of the study phases as outlined in DA Pam 5-5 and AR 5-5.

5-3. Data Requests.

a. The data requests as a minimum will state the specific data requirements and intended use of the data.

b. The SSD will--

(1) Prepare and submit the data request based on the study requirements.

(2) Coordinate the data requests with TRAC. TRAC will review the data requests to ensure that the data request is in sufficient detail so that the data provider understands the data requirements.

(a) The TRADOC Chief of Cost, TRAC-White Sands Missile Range (TRAC-WSMR) will review, approve, and forward cost data requests to the appropriate data provider. The SSD should not submit the data request so early that the data is outdated by the time the study report is completed. Cost data expires one year from the date of validation. Cost estimates for developmental systems take approximately 3 months to develop. As a minimum, the cost data request will describe the alternatives under consideration, specify the base year for both constant and current dollars, request validation, discuss any special considerations, and specify a due date.

(b) Cost data consists of the life cycle cost estimates, including Program Office Estimates (POEs) and other cost inputs provided by the Program Executive Officer (PEO)/Project Manager (PM) organizations and HQ AMC's MSC for materiel systems and tactical computer systems.

(3) Coordinate data requests for threat/OPFOR data with TRADOC DCSINT-TSD.

(4) Coordinate data requests for weapon systems performance data with DCSCD, HQ TRADOC.

(5) Coordinate data requests for logistics data with CASCOM.

c. The M&S user or application sponsor is responsible for requesting certified data for each application of the M&S and for conducting user VV&C.

5-4. Data Certification.

a. Studies.

(1) For studies, the certification of data requests, of the data itself, and documentation of the data used, consists of approval by the designated agency that the data is valid and is an indication of the data accountability and credibility.

(2) CASCOM, as specified in AR 700-8, is the Army source for approved logistics data and planning factors. CASCOM will review, approve and forward logistics data for use in TRADOC studies.

(3) The TRADOC Chief of Cost, TRAC-WSMR, approves cost data for use in studies and provide waivers for the validation requirement of the cost data. The provider of the cost data will ensure that the cost data is validated by an HQAMC/MSC POC before the data is forwarded to the TRADOC Chief of Cost, TRAC-WSMR. The validation of the cost data by the HQAMC/MSC POC is not approval for use of the cost data in the study. The act of forwarding the cost data to the SSD by the TRADOC Chief of Cost, TRAC-WSMR, constitutes approval of the cost data for use in the study.

(4) TRADOC DCSINT-TSD will review and certify threat/OPFOR data requests and data. If any modifications to the data request are needed, then TRADOC DCSINT-TSD will notify the data requester, including identification of any issues. TRADOC DCSINT-TSD will forward the coordinated and certified data request to Director, TRAC and the data provider as appropriate for threat/OPFOR data used in studies.

b. Upon receipt of the data from the data provider, the SSD and the study team are responsible for a user's VV&C of the data and its use.

(1) Data resulting from a test, survey, or previous study must be documented before it can be used in a study

(a) Data providers must give a description of the test or survey, limitations, any analysis performed, and interpretations of the findings in sufficient detail that the user of the data can independently assess the test or survey validity, reliability, and objectivity.

(b) Data providers must include a complete bibliographic reference(s) specifically identifying the source(s) of the data extracted from the published source(s).

(2) SSDs must determine if data from previous studies, tests or surveys is appropriate for use in the study.

c. Data used in M&S.

(1) All M&S data must be verified, validated, and certified (VV&C). Data VV&C isthe process of verifying the internal consistencyand correctness of data, validating that the data represents real world entities appropriate for its intended purpose or an expected range of purposes, and certifying that the data as having a specified use, type of use, or range of uses.

(2) Data certification is the first step in the VV&C process. Threat/OPFOR data must be reviewed and approved by TRADOC DCSINT-TSD prior to each application to determine whether changes have occurred that require updating the data. TRADOC DCSINT-TSD will submit recommendations and provide guidance to M&S proponents on required threat/OPFOR related portrayal enhancements to M&S. Once the certified data is received, it must be verified and validated.

(3) Data verification is the process of ensuring the primary source data to be used in the M&S is converted to the correct input formats, units of measure, and has values within the alowable range as specified in the design of the M&S. This ensures that the input and output data are in the proper format to be manipulated by the M&S.

(4) The data validation process is the comparison of input data to the corresponding known real-world or best estimate values. The M&S user to ensure that the data utilized in the M&S is appropriate and reasonable for its usage typically perform data validation.

5-5. Release of Data.

a. AR 5-11 provides detailed guidance on the release process for data. Figure 5-1 provides the TRADOC guidance for data release approval levels.

b All data will be protected per AR 381-11.

Chapter 6
M&S Release

6-1. Concept. This chapter describes requirements for the release of TRADOC M&S. All M&S release requests must be initiated by a domestic. The M&S recipients' category determines the procedure for release of M&S. The three categories of M&S recipients are (1) other U.S. Government organizations, (2) U.S. contractors and FFRDCs, and (3) foreign governments and international organizations. The TRADOC M&S proponents (e.g., Commanders of

Levels of Release Authority for Data

Type of Release	Release Authority	Release Consideration
FMS	**ICW other government agencies to MACOM CDRs & Agency Heads**	**May be delegated one level lower**
Non-FMS	**Delegated to MACOM CDRs & Agency Heads**	**May be delegated one level lower**

For TRADOC, MACOM CDRs or Agency Heads includde Installation and Center CDRs, Dir TRAC and Dir NSC.

Figure 5-1. Levels of Release Authority for Data

Installations and Centers, Dir, TRAC, and Dir, NSC) are the release authorities for domestic requests of M&S within the U.S. DUSA(OR) is the release authority of M&S to foreign governments and international organizations. Figure 6-1 provides the release authority for M&S.

TRADOC M&S proponents will comply with the guidelines provided in AR 5-11 for M&S release

6-2. Release to U.S. Government Agencies.

a. Requests to release Army M&S to other U.S. Government agencies including inter- and intra-service are made directly to the TRADOC M&S proponent organization.

b. After approval has been granted the TRADOC M&S proponent will prepare a Memorandum of Agreement (MOA) for M&S release. (See Appendix H). As a minimum, the MOA will state that the receiving agency will--

(1) Not release the M&S to a third party without written approval from the release authority.

(2) Use the M&S only for the purpose(s) stated in the MOA.

(3) Abide by all configuration control procedures established by the M&S proponent.

(4) Provide copies to the M&S proponent of any modifications or enhancements.

(5) Return the M&S upon completion of the work (or state in writing that they erased all code and data from their computers and electronic storage media).

6-3. Release to U.S. Contractors and FFRDCs.

a. The government agency sponsoring the work of the U.S. contractors or FFRDCs must request release of the M&S directly from the TRADOC M&S proponent organization. The release is subject to the advice and consent of the responsible contracting officer.

b. The M&S release request will state the government's specific requirement for the contractor or FFRDC to have access to the M&S, and an assessment or impact of not releasing the M&S. The M&S proponent is responsible for determining the validity of the request and for ensuring the execution of the documents in paragraph c below. The negotiation of any reimbursement of costs or fees associated with the release of the M&S must be accomplished prior to approval for release of the M&S.

c. The release of a TRADOC M&S to another government agency for release to a contractor requires the execution of the documents in paragraphs (1) and (2) below. The release of a TRADOC M&S to a contractor in direct support to the TRADOC M&S proponent requires execution of the document in paragraph (2) below.

(1) The TRADOC M&S proponent will prepare a MOA (see Appendix I) between the TRADOC M&S proponent and the government agency requiring contractor-furnished modeling support. The MOA states the conditions for the release, use, and return of the M&S to the M&S proponent. It also states which government agency is responsible for costs associated with furnishing the M&S. The MOA also requires the government agency to include the release, use, and return provisions in a contractual document with its contractor. The TRADOC M&S proponent and the management authority at the government agency requiring contractor support will sign the MOA. The TRADOC M&S proponent will provide a courtesy copy to DCSSA.

(2) After execution of the MOA described above, the receiving government agency will execute a contract modification, task order, or other document that is legally binding upon the contractor. The appropriate contractual document will include the conditions for the contractor's use

Levels of Release Authority for M&S

Type of Release	Release Authority	Release Consideration
Intraservice	MACOM CDRs & Agency	May be delegated

Figure 6-1. Levels of Release Authority for M&S

and return of the M&S. The government contracting officer providing support to the government agency and the appropriate contractor's management authority will sign the contract document.

6-4. Release to Foreign Government Agencies.

a. The DUSA(OR), HQDA is the approval authority for release of Army M&S to foreign governments per AR 5-11. Recipients must agree not to release the M&S to a third party. TRADOC organizations will not release M&S directly to foreign governments or international organizations. Foreign governments or international organizations sponsoring the work of the foreign contractors will initiate the request for release to foreign contractors.

b. Release of Army M&S to foreign governments and international organizations can be accomplished through one of the following:

(1) Foreign Military Sales (FMS).

(a) A foreign government or international organization interested in purchasing Army M&S through FMS must submit a request for a Price and Availability (P&A) data for preliminary planning or a Letter of Offer and Acceptance (LOA) to the U.S. Army Security Assistance Command (USASAC).

(b) IAW AR 5-11, USASAC will go directly to the TRADOC M&S proponent to obtain a recommendation concerning the release of the M&S to a foreign government or international organization. The recommendation as a minimum will identify other countries or international organizations to which this information has previously been released, include a system description of the M&S and Sensitivity of Technology Statement.

(c) If approved by the DUSA(OR), the USASAC POC will initiate action for the development of the P&A data or LOA to be provided to the foreign government.

(2) Other than FMS utilizing Cooperative R&D International Agreements (IAs) or Data Exchange Agreements/ Information Exchange Agreements ((DEAs/IEAs). DEAs/IEAs are appropriate for releasing M&S to foreign governments with which the United States has an existing agreement. DEAs/IEAs allow for exchange of scientific and technical information. (See Appendix J).

(a) The foreign government will make the request directly to the DUSA(OR), HQDA for release of the M&S through a specific DEA. TRADOC M&S proponents will refer all requests for release of M&S by a foreign government or international organization to the DUSA(OR), HQDA. Upon receipt by the DUSA(OR) the

request will be forwarded to the AMSO for action. AMSO will designate a release sponsor for the purpose of coordinating concurrence with the TRADOC organizations which have proponency for and/or are the originator of the requested M&S. Any fees associated with the M&S release will be negotiated by the release sponsor and the foreign government, with participation by AMSO, as representative of the DUSA(OR).

(b) If the request is approved by the DUSA(OR), then a memorandum will be issued with a copy of the original request to the TRADOC M&S proponent, the manager of the DEA program and HQ AMC, Office for International Cooperative Programs Activity.

(c) The TRADOC M&S proponent will develop an "administrative agreement" to convey M&S configuration control conditions for the transfer of the M&S under DEA/IEA. The M&S proponent will forward a copy of the approved administrative agreement to the head of the foreign government.

Appendix A
References

Section I
Required Publications

AR 5-11
Management of Army Models and Simulations

AR 25-1
The Army Information Resources Management Program

AR 70-1
Army Acquisition Policy

AR 71-9
Materiel Requirements

AR 335-15
Management Information Control System

AR 380-10
Technology, Transfer, Disclosure of Information and Contacts with Foreign Representatives

DOD 8320.1
DOD Data Administration

DOD 8320.1-M
Data Administration Procedures

DOD Directive 5000.1
Defense Acquisition

DOD Directive 5000.59
DOD Modeling and Simulation (M&S) Management

DOD Directive 8000.1
Defense Information Management (IM) Program

DOD Instruction 5000.61
DOD Modeling and Simulation (M&S) Verification, Validation, and Accreditation (VV&A)

DOD Regulation 5000.2-R
Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs

MIL STD 973
Configuration Management

DA Pamphlet 5-11
Verification, Validation and Accreditation of Army Models and Simulations

TP 71-9
Force Development Requirements Determination

DOD Model and Simulation Master Plan

Department of the Army Model and Simulation Master Plan

Department of the Army Model and Simulation Standards Report

Section II
Related Publications

AR 5-5
Army Studies and Analyses

AR 25-400-2
The Modern Army Record Keeping System (MARKS)

AR 700-8
Logistics Planning Factors and Data Management

TR 350-70
Training Development Management, Processes & Products

DA Pam 5-5
Guidance for Army Study Sponsors, Sponsor's Study Directors, Study Advisory Groups, and Contracting Officer's Representatives

DOD Directive 8120.1
Life-Cycle Management (LCM) of Automated Information Systems (AISs)

USD(A&T) Policy Letter, September 1996
Subject: DOD High Level Architecture (HLA) for Simulations

DMSO Transition Report, March 1998
Subject: DOD Transition to the High Level Architecture (HLA) for Simulations

Appendix B
M&S Integrated Concept Teams (ICTs)

B-1. Purpose.

a. The requirements determination process as defined in the Requirements Determination Black Book employs multidisciplinary ICTs. The ICT's methodology allows a concept to be evaluated from many perspectives. The ICTs "brainstorm" concepts from both visionary and practical perspectives with a more thorough consideration of desired warfighting capabilities and the means to achieve them, all of which enable Army leaders to make better and faster decisions.

b. The ICTs complement the existing Integrated Product Team (IPT) methodology used by materiel developers to manage system development. ICTs guidelines are provided in TP 71-9.

c. M&S ICTs employ the same concept referenced above in TP 71-9 but are specifically tailored to address M&S issues identified by the M&S ICT charter.

B-2. Formation of M&S ICTs.

a. M&S ICTs are formed only when needed to address cross-domain integration issues, potential leveraging opportunities, or efforts to reduce duplication.

b. The authority to form M&S ICTs depends on the type of issue or requirement under consideration. Individual Army organizations, domain agents, domain managers, DCSSA, AMSO, RIWG or RIC may form ICTs. ICTs are structured to seek both conventional "What is" and innovative "What could be" solutions.

(1) DCSSA, AMSO, RIWG or RIC will usually form M&S ICTs for broad/high visibility Army issues or requirements.

(2) The organization, domain agent or domain manager will form M&S ICTs for internal organizational or domain issues.

B-3. M&S ICT Membership.

a. The ICTs are expected to be multidisciplined teams with representation across M&S domains as described in TRADOC Pam 71-9. Consideration for team members include the following: M&S technical experts, M&S communications support experts, resource experts, M&S managers, domain representatives, M&S users, etc.

b. Membership on an M&S ICT depends on the issue or requirement under consideration. Even if the issue is organizational or intra-domain, representatives from other domains should be kept informed of the M&S ICT to determine the level of interest and participation.

B-4. Documenting M&S ICTs.

a. A charter will document all M&S ICTs. As a minimum, the charter will state the purpose of the M&S ICT, identify the management controls (i.e., ICT chair, end products, etc.), identify the membership, identify the ICT's objectives, identify milestones, and identify how the ICT will

operate (i.e., hold meetings, video teleconferences (VTCs), electronic mail, etc.).

b. The approval authority for the M&S ICT's charter is the organization convening the ICT.

Appendix C
Error Report (Sample)

SUBJECT: Detection of Error Report (RCS exempt IAW AR 335-15, para 5-2f (Submit as soon as possible but at least within 30 days after an error is identified).

Director
U.S. Army TRADOC Activity
ATTN: ATXX (M&S Proponent)
Location as appropriate

1. Reference Version: (The M&S proponent establishes the Reference Version identification number.)

2. Change Number: (The M&S proponent develops and publishes the guidelines for establishing the change number.)

3. Nature of Error Detected: (Describe M&S symptoms/behavior resulting in identification of suspected error.)

4. Recommended Correction: (Briefly describe the corrective course of action taken and the rationale as to how/why it resolves the error condition.)

5. Documentation: (Documentation shall consist of two copies of the routine(s). The first copy will be the routine(s) in the original form with the suspected error clearly marked (e.g., with a highlighter). The second copy will be the corrected version of the routine(s) with the lines of code correcting the error clearly marked.)

6. Benefits or Impact: (This paragraph should describe how the error impacted the originator's ability to use the reference version effectively. This paragraph should make clear how the implementation of the correction will enhance the capabilities of the M&S to the user. An assessment of the impact comparing it to the reference version is necessary.)

7. Name and Telephone Number of Point of Contact:

Appendix D
Notice of Intent to Modify a Model/Simulation (Sample)

SUBJECT: Notice of Intent to Modify/Enhance (Name) (RCS exempt IAW AR 335-15, para 5-2g) (Submit to the M&S proponent within 30 days of identifying the intent to modify/enhance the M&S.)

Director
U.S. Army TRADOC Activity
ATTN: ATXX (M&S Proponent)
Location as appropriate

1. Reference Version: (The M&S proponent establishes the Reference Version identification number.)

2. Conceptual Nature of Modification(s)/Enhancement(s): Provide an overview description of the modification(s)/ enhancement(s). Include its purpose, the enhanced capabilities it provides, and the expected benefit to the application(s).

3. Benefits or Impact. (Describe the impact of the proposed modification(s)/enhancement(s) on the effectiveness of the M&S's capability to support the user.)

4. Milestones: (Provide an estimate of the time and resources required to complete the modification(s) and/or enhancements identified. Include the projected start date.)

5. Name and Telephone Number of Point of Contact:

Appendix E
Model/Simulation Modification/Enhancement (Sample)

SUBJECT: (M&S) Modification/Enhancement Report (RCS exempt IAW AR 335-15, para 5-2g) (Submit the modification(s)/enhancement(s) report to the M&S proponent within 30 days the modification/enhancement proves appropriate in the application.)

Director
U.S. Army TRADOC Activity
ATTN: ATXX (M&S Proponent)
Location as appropriate

1. Reference Version: (The M&S proponent establishes the Reference Version identification number.)

2. Change Number: (The M&S proponent develops and publishes the guidelines for establishing the change number.)

3. Conceptual Nature of Modification(s)/Enhancement(s): Provide an overview description of the modification(s)/enhancement(s). Include its purpose, the enhanced capabilities it provides, and the expected benefit to the application(s).

4. Documentation: (Provide a detailed description of the modification(s)/enhancement(s). Include methodology, required algorithms, level of representation for entities, weapons or functional processes, and data description/requirement. Also include any coordination or concurrence with appropriate school/MSC/agency.)

5. Routines Affected: (List new/modified/enhanced routine(s).

6. New Input/Output Requirements:

a. Data Input Guide (DIG): (Provide changes/additions to the DIG which are a result of the modification. Maintain the detail and format of the DIG.)

b. Data Sources: (Identify the school/agency/MSC responsible/capable of providing the necessary input data to support the modification/enhancement.)

c. Post-processors: (Provide information similar to items 2 through 5 above for all software/data modifications to the post-processor.)

d. Estimated Effort: (Estimate (man-hours, man-days, or man-months, as appropriate) representing the effort to perform the modification/enhancement.

7. Benefits or Impact: (Describe the impact of the modification(s)/enhancement(s) on the effectiveness of the M&S's capability. Include a comparison of the new output with the reference version output.)

8. Impact on M&S Runtime: (Provide the current operational combat to central processing unit (CPU) time ratio as a result of the modification(s)/enhancement(s). If possible, provide the baseline ratio before modification(s)/enhancements(s).)

9. Name and Telephone Number of Point of Contact:

Appendix F
Documentation of M&S Requirements

F-1. Purpose. The purpose of this appendix is to discuss the documentation of M&S requirements. Documentation for M&S requirements can be either the MNS/ORD or M&S Requirements Document (MSRD) for "other M&S" M&S requirements.

F-2. Background.

a. Historically, major M&S requirements were documented in the traditional MNS and ORD process. However, there are M&S requirements that fall outside of this process. These "other M&S" requirements, may include requirements for M&S to support AWEs, ATDs, Training Exercises, SSPs, etc., which require M&S development and/or changes.

b. Other M&S requirements may start initially as "small" projects with minimal investment and develop over time into major requirements having an impact on the Army across several agencies and

the three domains. These requirements may consist of adding a new functionality to an existing model or simulation, development of a support tool, etc. It is the intent of the RIA process to have these requirements collected by the domain managers and agents so that they can be reviewed and integrated, as appropriate.

c. The commands, centers, activities and agencies provide their input to the domain agents. The domain agent and manager review the submissions to their domains and crosswalk new submissions with previously approved requirements to identify opportunities for integration and leveraging of efforts.

d. The domain requirements are provided through DCSSA to the RIWG for review. The RIWG, whose members include representatives from the domains (agents and managers), work to integrate, reconcile, and leverage M&S development across the domains.

F-3. Staffing of MSRD and M&S MNS/ORD.

a. MNS/ORD are the traditional requirements documents for systems and major M&S development. MSRD are used to document M&S requirements that don't meet the criteria in TP 71-9 for documentation with MNS/ORD. The developer of the MSRD or M&S MNS/ORD should conduct extensive staffing of the documents during development (to include all M&S domains).

b. The MSRD or M&S MNS/ORD must be staffed with the RIWG prior to submitting the document for approval.

c. Format for MNS/ORD is provided in TP 71-9. Format for MSRD is provided below and in TP 71-9.

F-4. Requirements and Approval

a. Domain specific requirements are approved by the respective domain agents. DCSSA provides the cross domain MSRDs and MNS/ORD to DCG, TRADOC for approval. The HQ TRADOC Form 30 requesting Domain Agent or DCG, TRADOC approval and memoranda transmitting the approved MSRD will state that the requirement has been reviewed by the RIWG (and RIC if necessary). The Form 30 will state the RIWG (and RIC) recommendation. The possible recommendations are:

(1) There were no integration issues identified (i.e., it is a domain specific requirement). Therefore it is the domain agent's responsibility to approve the requirement.

(2) There were integration issues identified and they have been resolved with the recommendation that a single domain will address the issues. The identified domain agent will approve the requirement.

(3) There were integration issues identified and it was determined that the requirement is a cross-domain requirement. The RIWG and RIC, if necessary, will endorse the requirement for DCG, TRADOC approval.

d. For those requirements approved by domain agents, their action offices will provide a copy of the approval document to the members of the RIWG. For those cross-domain requirements approved by the DCG, TRADOC, DCSSA will provide a copy of the approval document to the RIWG members.

e. Domain managers and agents use the approved requirements as the basis for the domain investment plan.

Model and Simulation Requirements Document (MSRD)

Title:

POC/Organization Information:
Include telephone and email information for POCs.

Key Words:

Domain(s) Supported and Domain Activities Supported: (Advanced Concepts and Requirements (ACR) includes force design, operational requirements, warfighting experiments. Research, Development, and Acquisition (RDA) includes basic applied research, weapons system development, and test and evaluation. Training, Exercises, and Military Operations (TEMO) includes individual and collective training, joint and combined exercises, mission rehearsal, and operations planning.)

Type of Requirement (M&S Development or Enhancement, M&S Support Applications, M&S Support Activities): Examples below.

a. Development and maintenance of M&S. This category includes the development/ significant enhancements and maintenance of M&S to include new start M&S and associated M&S specific hardware, data and terrain, communications support, contract support, instrumentation support, etc.

b. M&S Support Applications**.** M&S support applications are those M&S tools developed independently of a specific M&S (i.e., non-specific M&S support applications). Examples include an after action review capability, scenario generation tools, data or terrain, visualization enablers, standard data/terrain/algorithm/ VV&A processes, interoperabilty enablers, etc.

c. M&S Support Activities. Efforts considered M&S support activities include long haul networking, M&S contract support (feasibility studies, proofs of principle, one-of-a-kind-buys, and contract logistics support), and new simulation facilities. (i.e., The proposed need to bring M&S, hardware, and other support items together in one place to create a specific

simulation capability, not the construction of a building.)

Description (Capability Required):

Justification (Void/Deficiency/Shortfall):

Description of investigation to ensure capability does not already exist: (Could show a list of programs considered with short statement of why it was not sufficient. Include the coordination POC)

Description of investigation of integration opportunities or why integration is not an issue (List coordination):

Other impacts/constraints (communications/networks, equipment, users, etc.): Examples of communications/network impacts include:

a. Impact of requirements on installations' communications environment. Include impact on geographic locations to be linked, network topology, transmission techniques, data transfer rates, gateways, required system use times, type and volume of data to be transmitted and received, time boundaries for transmission, reception and response, peak volumes of data and diagnostic features, and security classification.

b. Impact of proposed and approved modifications on installations' computer processing environment. Include impact on quantity, type and placement of processors, peripherals and communications interface devices.

Benefit/ROI/Impact if not approved:

Urgency statement if required (with rationale):

Estimated Funding by FY/Type of funds (OMA, OPA, RDTE development and maintenance costs)/Proposed source:

Expected approval level (Agency, Domain, DCG TRADOC):

Status of Review/Approval (To be updated as requirement is processed):

Appendix G
Configuration Management
Documentation Requirements and Guidelines

G-1. Purpose. The purpose of this appendix is to establish the requirements and guidelines for documentation of TRADOC M&S.

G-2. Philosophy.

a. Maintaining current and accurate documentation is a significant and continuous part of configuration management for TRADOC M&S. The M&S proponent must apply sufficient resources to the configuration management process to support the documentation requirements.

b. The documentation process begins with the planning stages of the project and continues through development and use of the M&S. M&S developers will identify documentation requirements at the beginning of the project so programmed resources reflect both development and documentation activities.

c. M&S documentation typically consists of several separate manuals to describe various aspects of the M&S and its use. A basic documentation set includes an executive summary, a methodology manual, a programmer's manual, and a user's manual. Other manuals and reports dealing with such topics as data, V&V, accreditation, etc. may be part of the M&S's documentation package. These other manuals could also record the status or results of configuration management activities (e.g., change reports), or of activities that support but are not part of the M&S (e.g., data base acquisition, generation, and maintenance).

d. The M&S developer and configuration manager (i.e., M&S proponent) determine the format and degree of detail of M&S documentation. The documentation will comply, with current DoD and Army regulations and guidelines. Printed documents will comply with Army and TRADOC regulations/policies governing publications. Documents distributed on electronic or magnetic media will be in a standard format which does not require unique or proprietary software to access. The basic documentation set will be unclassified to the greatest extent possible.

G-3. Executive Summary.

a. The executive summary provides a capsule description of the M&S. It is intended for managers, decision makers, study directors, or other individuals who want a broad overview of the M&S's capabilities and resource implications. It should be as short as possible yet include sufficiently detailed information to allow the decision maker to make a preliminary determination of the M&S's applicability to a specific problem.

b. The executive summary is the equivalent to an abstract of the other much more detailed manuals discussed in following paragraphs. It must succinctly describe the key characteristics, performance parameters, and resource requirements of the M&S. As a minimum, the authors will--

(1) Provide a description of the entities and processes represented in the M&S. Include the level of resolution (item/system, platoon, company, etc.) Discuss the modeling techniques, mathematical formulations, and other methodological topics. Identify, if appropriate, the significant assumptions and limitations.

(2) Provide information on the computer environment(s) required to execute the M&S. Include typical performance parameters such as run times, disk storage requirements, etc. Give information, to the degree available, on expected differences in performance parameters if the M&S can execute on more than one computer system. Identify any unique or non-standard software and hardware requirements.

(3) Provide a brief description of the level of effort required to use the M&S. Include the number(s) and qualification(s) of personnel required to run the M&S, typical data collection/preparation requirements, and other factors that influence the timelines for application of the M&S.

c. The author(s) will design the executive summary as a stand-alone document, preferably printed, unclassified, and with unrestricted releasability.

G-4. Methodology Manual.

a. The methodology manual documents the details of the mathematical representations and modeling techniques applied within the M&S. The manual will--

(1) Provide a macro view of the major modules that comprise the M&S and the interactions among those modules.

(2) Provide a section on each module which describes in detail such topics as the mathematical formulae applied, the underlying assumptions and limitations, the data required, the interdependencies and interactions with other modules, etc.

b. The methodology manual may consist of more than one volume depending on the size and complexity of the M&S. Isolate classified material into a separate volume so the bulk of the manual remains unclassified. Clearly identify references throughout the manual and provide a complete bibliography of cited and related material. This entire manual should be available in printed form since it serves primarily as a reference manual rather than an "instruction" type manual.

G-5. Programmer's Manual.

a. The programmer's manual is the computer-oriented part of the M&S documentation. It serves as the instruction and trouble-shooting manual for the computer operator(s) and programmer(s) who load, modify, execute, and maintain the software and the hardware on which it runs. It must address not only the modules and programs that comprise the M&S but also the system software configurations and unique hardware requirements for executing the M&S. It is the most technical documentation for the M&S.

b. The programmer's manual encompasses a full range of computer-related requirements for use of the M&S. Some of the areas to describe in detail include:

(1) System environment. The system environment includes the required and optional hardware, communication connectivity and protocol requirements, and required and optional system level software (operating system, compilers, etc.). Describe all the computer systems on which the M&S operates. Provide complete specifications for physically and logically configuring the system and supporting the execution of the M&S at the system level (e.g., backups, disk storage, etc.). Identify required and optional commercial or proprietary software. Also provide the instructions for obtaining this software if it is not part of the M&S release package.

(2) Programming environment. Identify the programming language(s) used in the M&S code to include the appropriate version(s) (or release(s)). Document the program architecture at a macro level. Show the major modules that comprise the M&S and the interdependencies and interrelationships among the modules. The author will determine the degree to document the individual programs and routines based on the "took kit" available for the programmer on the system. Hard copy code listings and detailed cross reference printouts are not usually required given the "on-line" assistance available in most programming environments.

(3) Operational environment. Provide step-by-step instructions for preparation, execution, and output processing for the M&S. Identify preprocessing requirements for building the input data bases needed to run the M&S. Discuss the procedures required during execution of the M&S. Describe the post-processing capabilities available. The characteristics of the M&S (e.g., batch, interactive, stochastic, deterministic) and its intended use (e.g., analysis, training) will determine the level of detail required in this part of the documentation.

c. The programmer's manual may consist of more than one volume. In fact, much of it might most effectively be provided as "on-line help libraries" released with the M&S software.

G-6. User's Manual.

a. The requirements of a user's manual vary greatly depending on the nature of the M&S, its intended role, and the expected background of the

user. The user's manual should have an operator's guide which documents the steps necessary to operate the M&S in a production mode. A data preparation guide is a fairly standard part of any M&S user's manual. A gamer's guide is desirable for interactive "war game" type M&S systems. A guide for friendly and enemy interactions and for controllers of training M&S may be required. A M&S used for studies and analyses would need a description of the outputs generated and the post-processing capabilities available to the user.

b. The user's manual, like the programmer's manual, might consist of more than one volume. Much of this manual may be provided as "on-line help libraries". There may be considerable overlap between the user's manual and portions of the programmer's manual. A key distinction is that the user's manual should be as "system independent" as is possible.

Appendix H
Memorandum of Agreement (MOA) for Release of TRADOC Model/Simulation to U.S. Government Agencies

MEMORANDUM OF AGREEMENT (MOA)
BETWEEN
(M&S Proponent AND U.S. Government Agency)

1. The purpose of this memorandum of agreement (MOA) is to establish procedures for the [insert name of government activity], hereafter the activity, to obtain access to and use [state the name(s) of the M&S], hereafter the M&S, in performance of the following tasks: [describe in detail the purpose(s) for which the activity will use the M&S.]

2. The [insert name of TRADOC M&S proponent], hereafter the M&S proponent, agrees to provide the M&S to the activity only in performance of the specific tasks described above.

3. The M&S to the activity consists of [provide a listing for each furnished M&S]:

a. One (1) [describe medium, such as nine track ASCII tape] containing the [insert name] M&S [source and/or object code].

b. [If applicable: One (1) unclassified sample of a data base].

c. [If applicable: Names of scenarios provided].

d. [If applicable: One (1) copy of M&S documentation].

4. The activity accepts the M&S subject to the following terms and conditions:

a. The activity will properly safeguard, maintain, and utilize the M&S only in performance of the tasks described above.

b. The activity will only provide persons engaged in performance of the tasks described above access to and use of the M&S. The activity will not allow contractors or any representative or employee of a foreign government, to include contractors for such governments, to have access to the M&S.

c. The activity may reproduce, for the sole purpose of reasonable backup procedures, one copy (each) of the M&S, scenario(s), and data. The activity may reproduce two copies of the M&S documentation. The activity will return the M&S, data, scenario(s), backups, and documentation to the M&S proponent upon expiration of the term specified in this agreement. Alternatively, the activity may destroy all provided material, backups, and copies and provide a certificate of destruction to the M&S proponent.

d. The activity agrees to participate in the M&S Users Group meetings. The activity will advise those attending the meeting of all errors, shortcomings, or M&S redundancy, as well as all modifications and enhancements the activity has made to the M&S. The activity shall also furnish recommendations regarding the future development and use of the M&S.

e. The activity will abide by all configuration control procedures established by the M&S proponent.

5. This MOA will become effective upon signature of both parties. The parties agree that all M&S furnished to the activity shall be governed by the MOA. The MOA will remain effective until [specify date or event when the MOA will expire, such as completion of the tasks described in paragraph 1 above] unless earlier revoked in writing by either party, at which time all M&S will be returned to the TRADOC M&S proponent.

(TRADOC M&S Proponent's Signature) (Government Activity) (Signature)

DATE: DATE:

Appendix I
Memorandum of Agreement (MOA) for Release of a TRADOC Model/Simulation to a U.S. Contractors and FFRDCs

MEMORANDUM OF AGREEMENT
BETWEEN
THE
(TRADOC M&S Proponent)
AND
(Government Activity Requiring Contractor M&S Support)

1. This memorandum of agreement (MOA) establishes procedures for the [insert name of government activity], hereafter the activity, and the following contractor(s) [insert the name of contractor(s)] to obtain access to and use Army M&S [state the name(s) of the M&S], in performance of the following tasks: [describe in detail the purposes for which the activity and its contractor(s) will use the M&S].

2. The [insert name of TRADOC M&S proponent], hereafter the M&S proponent, agrees to provide the Army M&S to the activity and its contractor(s) only in performance of the specific tasks described above. Each TRADOC memorandum forwarding a M&S to the activity will specify the tasks for which the M&S is being provided, describe the M&S being furnished, and specify that it is being provided pursuant to this MOA. The activity agrees to safeguard the M&S and their documentation, to include provisions contained in the Memorandum Annex in contracts, tasks orders, or other appropriate legally binding documents of contractor(s) which will be provided access to such M&S, to enforce the Memorandum Annex, and upon request of the TRADOC M&S proponent to direct contractor(s) to return the M&S to the M&S proponent. Should the activity retain or use the M&S, it agrees to comply with the provisions contained in the Memorandum Annex.

3. The activity will pay all expenses incurred by contractor(s) in performance of this MOA and the Memorandum Annex.

4. This MOA will become effective upon signature of both parties. The parties agree that all M&S furnished to the activity and its contractor(s) shall be governed by the MOA and the Memorandum Annex. The MOA will remain effective until [specify date or event when the MOA will expire, such as completion of the tasks described in paragraph 1 above] unless earlier revoked in writing by either party, at which time all M&S will be returned to the TRADOC M&S proponent. The activity agrees to enforce the provisions contained in the Memorandum Annex even after termination of the MOA.

(TRADOC M&S Proponent's Signature) (Government Activity) (Signature)

DATE: DATE:

MEMORANDUM ANNEX

1. The government provides the contractor the M&S and documentation described in paragraph 2 below (hereafter M&S), as government furnished property, to perform the following tasks: [describe tasks in detail]. The contractor agrees to use the M&S only in performance of the above tasks and for no other purpose. As the M&S was developed

by the Army, the contractor acknowledges that the Army has unlimited rights in the M&S. The contractor further agrees to return the M&S to the [insert name of TRADOC M&S proponent], hereafter the M&S proponent, upon completion of the above tasks, or at an earlier date as specified below. While the M&S is not currently under the "export control" provisions and restrictions described in DOD Directive 5230.24, Distribution Statements on Technical Documents, DOD Directive 5230.25, Withholding of Unclassified Technical Data from Public Disclosure, and DOD 5230.25 PH, Control of Unclassified Data with Military or Space Application, the contractor agrees to consider the M&S as already being under "export control" and to abide by all regulations and restrictions governing data under such control.

2. The M&S furnished to the contractor consists of the following items, hereinafter collectively referred to as the M&S [provide listing for each furnished M&S]:

a. One (1) [describe medium, such as nine track ASCII tape] containing the [insert name] M&S [source and/or object code].

b. [If applicable: Data base required to perform the tasks described in paragraph 1 above, to the extent they are available and releasable].

c. [If applicable: Names of scenarios provided].

d. [If applicable: One (1) copy of M&S documentation].

3. The contractor accepts the M&S subject to the following terms and conditions:

a. The contractor shall properly safeguard, maintain, and utilize the M&S only in performance of the tasks described above. The contractor shall only provide employees engaged in performance of the tasks described above access to and use of the M&S. The contractor shall institute an accountability program for security and control of the M&S, and furnish to the contracting officer, upon request, a report listing all contractor employees who had access to or use of the M&S. The contractor assumes the risk and shall be responsible for the loss of the M&S, and shall, in addition to other available remedies, reimburse the Army for all costs of reproducing or recovering the M&S.

b. The contractor shall not allow any representative or employee of a foreign government, to include contractors for such governments, to have access to the M&S.

c. The contractor shall not copy or transfer the M&S or any modifications or enhancements thereof to any person not an employee or officer of the contractor, and not directly involved with the performance of the tasks described above. The contractor may make a backup copy of the M&S and two copies of the M&S documentation provided they are returned to the M&S proponent when the M&S is returned. Alternatively, the contractor may destroy the M&S and the backup and provide a certificate of destruction to the M&S proponent.

d. The contractor agrees that the name(s), [insert name(s) of M&S] shall only be used when referring to M&S proponent's reference version of the M&S, and not for any enhancement or derivation of the M&S. The contractor shall classify studies and results of analyses IAW applicable DoD classification and security regulations.

e. The contractor agrees to provide to the United States a copy of and unlimited rights in all modifications and enhancements made to the M&S as well as a record of derivations of all changes, modifications and enhancements made to the M&S. The contractor further agrees to provide a copy of and unlimited rights in M&S substantially derived from the M&S, as well as the record of derivation back to the original M&S. A M&S is "substantially derived" if at least 50% of the M&S is based upon or derived from the M&S, or if the M&S was developed in connection with or to support a contract with the United States. The contractor further agrees to maintain and furnish at no cost to the M&S proponent, upon conclusion of the task, and earlier if requested by

the contracting officer, a report which describes each modification or enhancement made to the M&S, as well as a copy with source code of all modifications and enhancements made to the M&S.

f. Within six months of the receipt of the M&S, and upon conclusion of the contract, the contractor shall provide a written report to the M&S proponent, regarding any errors, shortcomings, or M&S redundancy identified from a review of the M&S. The contractor shall additionally provide comments and proposed corrections concerning the M&S. The contractor shall provide the M&S proponent, upon request, study results from performance of the above tasks and all input data developed during the performance of the task.

g. The contractor agrees to participate in the M&S Users Group meetings conducted by the M&S sponsor. The contractor will advise those attending the meeting of all errors, shortcomings, or M&S redundancy, as well as all modifications and enhancements the contractor has made to the M&S. The contractor shall also furnish recommendations regarding the future development and use of the M&S.

h. Upon completion of the tasks described above, or whenever directed by the contracting officer, the contractor shall return to the M&S proponent, all copies of the M&S, as well as copies of all modifications and enhancements made to the M&S and M&S documentation.

4. All notifications made to or on behalf of the M&S proponent shall be made to or by: [insert name, address, and commercial phone number]. [The contractor and the activity's contracting officer will sign the Memorandum Annex when incorporated into a contract or contractual document].

Appendix J
Administrative Agreement Under Data Exchange Programs

ADMINISTRATIVE AGREEMENT
FOR THE TRANSFER OF THE [insert name]
TO THE [insert name of foreign government]
UNDER ANNEX NUMBER [insert number]
AND
UNDER THE MASTER DATA EXCHANGE AGREEMENT

1. The M&S consists of the following items [provide a listing for each M&S]:

a. One (1) [describe medium, such as nine track ASCII tape] containing the [insert name] M&S [source and/or object code].

b. [If applicable: One (1) unclassified sample of data base].

c. [If applicable: One (1) copy of M&S documentation].

2. As a condition for receipt of the items listed in paragraph (1), hereinafter collectively referred to as the M&S, the foreign government agency, hereinafter referred to as the activity, agrees to the following terms regarding use of the M&S in conducting research and analytical studies and in applying the M&S to training applications.

a. The activity acknowledges that the United States Government created and owns the M&S.

b. The activity will not allow access to or transfer the M&S (or any enhancements/modifications thereto) to any person not an employee of the activity without specific approval by the approval authority [insert title and name of GO or civilian equivalent].

c. The activity may reproduce, for the sole purpose of reasonable back-up procedures, one copy of the M&S provided the activity will, upon expiration of the term specified in this agreement return the M&S and the copy to the [insert name].

d. The activity will notify the [insert name] of any errors, shortcomings, or M&S redundancy resulting from a review of the M&S.

e. The activity will provide [insert name] copies with rights to unlimited use at no cost of modifications or enhancements made to the M&S or of any other M&S substantially derived from

the M&S as provided by [insert name]. A M&S is "substantially derived" if at least 50% of the M&S is based upon or derived from the furnished M&S, or was developed in connection with the research and analytical services performed with the furnished M&S.

f. Any training or technical assistance services desired by the activity from the U.S. [insert name] in conjunction with the transfer or use of the M&S will be requested through FMS.

g. The activity will immediately return all copies of the M&S provided by the U.S. Army [insert name] upon expiration of the term specified in this agreement.

3. Disagreements between the United States and the activity regarding the use or transfer of the M&S shall be mutually resolved by the signatories to this agreement or their designees.

4. This agreement is valid for three (3) years from the date of signing by the approving authority [insert title and name of GO or civilian equivalent]. It may be terminated at an earlier date by either party through written notification.

5. The U.S. Army POC for any correspondence regarding the M&S is [insert name and address].6. The activity POC for any correspondence regarding the M&S is [insert name and address].

(M&S Proponent's Signature)	(Receiving Agency) (Signature)
DATE:	DATE:

Glossary

Section I
Abbreviations

AAE
Army Acquisition Executive

ACAT
Acquisition Category

ACR
Advanced Concepts and Requirements

ACT II
Advanced Concepts and Technology II

ACTD
Advanced Concepts and Technology Demonstration

ADCSOPS
Assistant Deputy Chief of Staff for Operations and Plans

ADCSSA
Assistant DCSSA

ADS
Authoritative Data Source

AIS
Automated Information System

ALSP
Aggregate Level Simulation Protocol

AMC
United States Army Materiel Command

AMIP
Army Model Improvement Program

AMS GOSC
Army Model and Simulation General Officer Steering Committee

AMSAA
Army Materiel Systems Analysis Activity

AMSEC
Army Model and Simulation Executive Council

AMSMP
Army Model and Simulation Management Program

AMSO
Army Model and Simulation Office

AOA

Analysis of Alternatives

ARSTAF
Army Staff

ASA(RDA)
Assistant Secretary of Army for Research, Development, and Acquisition

ASP
Advanced Simulations Program

ATA
Army Technical Architecture

ATD
Advanced Technology Demonstration

ATSC
Army Training Support Center

AWE
Advanced Warfighting Experiment

Battle Lab
Battle Laboratories

BBS
Bulletin Board System

C4I
Command, Control, Communications, Computers, and Intelligence

C4ISR
Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance

CAA
Concepts Analysis Agency

CAC
Combined Arms Command

CAIV
Cost An Independent Variable

CASCOM
Combined Arms Support Command

CCB
Configuration Control Board

CEAC
Cost and Economic Analysis Center

CFDAd
Component Functional Data Administrator

CG
Commanding General

CM
Configuration Management

CMP
Configuration Management Plan

COB
Command Operating Budget

COL
Colonel

CPU
Central Processing Unit

CSA
Chief of Staff of the Army

CSS
Combat Service Support

DA
Department of the Army

DAB
Defense Acquisition Board

DCG
Deputy Commanding General

DCS
Deputy Chief of Staff

DCSCD
Deputy Chief of Staff for Combat Developments

DCSIM

DCSIM
Deputy Chief of Staff for Information Management

DCSINT
Deputy Chief of Staff for Intelligence

DCSINT-TSD
Deputy Chief of Staff for Intelligence-Threat Support Directorate

DCSOPS
Deputy Chief of Staff for Operations and Plans

DCSSA
Deputy Chief of Staff for Simulations and Analysis

DCST
Deputy Chief of Staff for Training

DDDS
Defense Data Dictionary System

DEA
Data Exchange Agreement

DIG
Data Input Guide

Dir
Director

DIS
Distributed Interactive Simulation

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

DMSO
Defense Modeling and Simulation Office

DOD
Department of Defense

DODD
Department of Defense Directive

DODI
Department of Defense Instruction

DOIM
Directorate of Information Management

DPRB
Defense Planning and Resources Board

DSI
Defense Simulation Internet

DTLOMS
Doctrine, Training, Leader Development, Organization, Materiel, and Soldier

DUSA(IA)
Deputy Under Secretary of the Army for International Affairs

DUSA(OR)
Deputy Under Secretary of the Army for Operations Research

FFRDC
Federally Funded Research and Development Center

FMS
Foreign Military Sales

FOC
Future Operational Capability

FTP
File Transfer Protocol

FY
fiscal year

GM
General Manager

GO
General Officer

GOSC
General Officer Steering Committee

HLA
High Level Architecture

HQ
Headquarters

HQDA
Headquarters, Department of the Army

IA
International Agreement

IAW
In Accordance With

ICT
Integrated Concept Team

IEA
Information Exchange Agreement

IEEE
Institute of Electrical and Electronic Engineers

IPT
Integrated Product Team

JROC
Joint Requirement Oversight Council

JTA-Army
Joint Technical Architecture-Army

KEI
Key Enabling Investment

LCM
Life Cycle Management

LOA
Letter of Agreement

LTC
Lieutenant Colonel

M&S
Model(s) and Simulation(s)

MACOM
major Army command

MAIS
Major Automated Information System

MAISRC
Major Automated Information Systems Review Council

MARKS
Modern Army Record Keeping System

MATDEV
Materiel Developer

MDA
Milestone Decision Authority

MDAP
Major Defense Acquisition Program

MDEP
Management Decision Package

MIL STD
Military Standard

MNS
Mission Need Statement

MOA
Memorandum of Agreement

MSC
Major Subordinate Command

MSEA
M&S Executive Agency

MSRD
M&S Requirements Document

MSRR
M&S Resource Repository

MTMC
Military Traffic Management Command

NSC
National Simulation Center

OA
Operational Architecture

ODCSOPS
Office of the DCSOPS

OMA
Operation and Maintenance, Army

OPA
Other Procurement, Army

OPFOR
Opposing Forces

ORD
Operational Requirements Document

OSA
Open Systems Architecture

OSD
Office of the Secretary of Defense

P&A
Price and Availability

PBD
Program Budget Decision

PDU
Protocol Data Unit

PEG
Program Evaluation Group

PEO
Program Executive Officer

PM
Program/Product Manager

POC
Point of Contact

POE
Program Office Estimate

POM
Program Objective Memorandum

PPBS
Planning, Programming, and Budgeting System

PPBES
Planning, Programming, Budgeting, and Execution System

RDA
Research, Development and Acquisition

RDEC
Research, Development and Experimentation Center

RDTE
Research, Development, Test and Evaluation

RIA
Requirements Integration and Approval

RIC
Requirements Integration Council

RIWG
Requirements Integration Working Group

ROI
Return On Investment

SA
Systems Architecture

SARDA
Secretary of the Army for Research, Development and Acquisition

SCC
Standards Category Coordinator

SES
Senior Executive Service

SIMTECH
Simulation Technology Program

SME
Subject Matter Expert

SS
Study Sponsor

SSD
Sponsor's Study Director

SSP
Simulation Support Plan

STRICOM
Simulation, Training, and Instrumentation Command

T&E
Test & Evaluation

TA
Technical Architecture

TADSS
Training Aids, Devices, Simulations, and Simulators

TEMO
Training, Exercises, and Military Operations

TRAC
TRADOC Analysis Center

TRAC-WSMR
TRADOC Analysis Center-White Sands Missile Range

TRADOC
United States Army Training and Doctrine Command

USACE
U.S. Army Corps of Engineers

USASAC
U.S. Army Security Assistance Command

USD (A&T)
Under Secretary of Defense for Acquisition and Technology

V&V
Verification and Validation

VCSA
Vice Chief of Staff, U.S. Army

VTC
Video Teleconference

VV&A
Verification, Validation, and Accreditation

VV&C
Verification, Validation, and Certification

WG
Working Group

WSMR
White Sand Missile Range

WWW
World Wide Web

Section II
Terms

Accreditation
The official determination that a model, simulation, or federation of M&S is acceptable for use for a specific purpose.

Accreditation Agent
The organization designated by the application sponsor to conduct an accreditation assessment for a M&S application.

Accreditation Criteria
A set of standards that a particular model, simulation, or federation of M&S must meet to be accredited for a specific purpose.

Accreditation Proponent
The head of the agency designated to determine a M&S is acceptable for a generic class of applications.

Advanced Concepts and Requirements (ACR) Domain
One of the three domains for Army M&S applications. ACR includes experiments with new concepts and advanced technologies to develop requirements in doctrine, training, leader development, organizations, materiel and soldiers which will better prepare the Army for future operations. ACR evaluates the impact of horizontal technology integration through

simulation and experimentation using real soldiers in real units.

Advanced Simulations Program
An Army program intended to increase the effectiveness and efficiency of Army M&S development and use through the creation and sustainment of a common synthetic operating environment based on advanced simulation technology to support users in multiple domains. This program is a result of a critical review and re-focusing of the DIS Program.

Analysis
A broad category of study and investigation which includes support to operational, tactical, and strategic decision making.

Analysis of Alternatives
A study conducted to provide support for acquisition decisions in the acquisition cycle.

Application
A specific, individual project session that requires or uses an M&S to achieve its purpose.

Application Sponsor
The organization that utilizes the results or products from a specific application of a model or simulation.

Architecture
The structure of components in a program/system, their relationships, and the principles and guidelines governing their design and evolution over time.

Army Model and Simulation Standards Report
The Army Model and Simulation Standards Report contains the yearly status of Army efforts to standardize model and simulation techniquesand procedures. It also reflects the Army's yearly model and simulations investments through the Army Model Improvement Program (AMIP) and the Simulation Technology (SIMTECH) Program.

Automated Information System (AIS)
A combination of information, computer hardware, software, personnel, and telecommunications resources that collects, records, processes, stores, communicates, retrieves, and/or displays information.

Common Use M&S
M&S applications, services, or materials provided by a DOD component to two or more DOD components.

Configuration Control Board
A board composed of technical and administrative representatives who recommend approval or disapproval of proposed engineering changes, waivers and deviations from a configuration item's current approved configuration documentation.

Configuration Management
The application of technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a M&S, control changes, and record and report change processing and implementation status.

Configuration Management Plan (CMP)
The document defining how configuration management will be implemented (including policies and procedures) for a particular acquisition or program.

Data
Representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is, or might be, assigned.

Data Certification
The determination that data have been verified and validated. Data user certification is the determination by the application sponsor or designated agent that data have been verified and validated as appropriate for the specific M&S usage. Data producer certification is the determination by the data producer that data have been verified and validated against documented standards or criteria.

Data Exchange Standard
Formally defined protocols for the format and content of data messages used for interchanging data between networked simulation and/or simulator nodes used to create and operate a distributed, time and space coherent synthetic environment.

Data Proponent
The agency or organization that has primary responsibility for a Data collection or data base. The proponent develops the requirement for the data.

Data Standards
A capability that increases information sharing effectiveness by establishing standardization of data elements, data base construction, accessibility procedures, system communication, data maintenance and control.

Data Validation
The documented assessment of data by subject area experts and its comparison to known values.

Data user validation is an assessment as appropriate for use in a intended M&S. Data producer validation is an assessment within stated criteria and assumptions.

Data Verification
Data producer verification is the use of techniques and procedures to ensure that data meets constraints defined by data standards and business rules derived from process and data modeling. Data user verification is the use of techniques and procedures to ensure that data meets user specified constraints defined by data standards and business rules derived fromprocess and data modeling, and that the data is transformed and formatted properly.

Data Verification, Validation, and Certification
The process of verifying the internal consistency and correctness of data, validating that it represents real world entities appropriate for its intended purpose or an expected range of purposes, and certifying it as having a specified level of quality or as being appropriate for a specified use, type of use, or range of uses. The process has two perspectives: producer and user process.

Defense Simulation Internet (DSI)
A wide band telecommunications network operated over commercial lines with connectivity to both military and civilian satellites allowing users to be linked on a world-wide, wide area network.

Distributed Interactive Simulation (DIS)
A subset of advanced distributed simulation which interfaces through the use of DIS Protocol Data Units.

DOD Modeling and Simulation (M&S) Executive Agent (MSEA)
A DOD component to whom the USD(A&T) has assigned responsibility and delegated authority for coordinating the development and maintenance of a specific area of general or common-use M&S application, including relevant standards and data bases, used by or common to many models and simulations.

Domain
A distinct functional area that can be supported by a class of software systems with similar requirements and capabilities.

Federation of Models and Simulations
A system of interacting M&S with supporting infrastructure, based on a common understanding of the objects portrayed in the system.

Interoperability
The ability of a set of M&S to provide services to and accept services from other M&S, and to use the services for exchange enabling them to operate effectively together.

Legacy System
A simulation or model developed in the past which is still in use that was not implemented using today's M&S standards.

Model
A model is a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.

Model Types.

a. Physical model - A physical representation of the real world object as it relates to symbolic models in the form of simulators.

b. Mathematical model - A series of mathematical equations or relationships that can be discretely solved. This includes M&S using techniques of numerical approximation to solve complex mathematical functions for which specific values cannot be derived (e.g., integrals).

c. Procedural model - An expression of dynamic relationships of a situation expressed by mathematical and logical processes. These models are commonly referred to as simulations.

M&S Activity
The development and maintenance of a computer-based M&S capability by or for organizations of the U.S. Army.

M&S Application Sponsor
The organization that utilizes the results or products from a specific application of a model or simulation.

M&S Developer
The organization responsible for managing, or overseeing models and simulations developed by a DOD component, contractor, or Federally Funded Research and Development Center (FFRDC). The developer may be the same agency as the M&S proponent agency.

M&S Infrastructure
The underlying base or foundation of assets available to support the development and maintenance of M&S, the basic facilities, equipment, installations, and services needed for the development and maintenance of a system, includes personnel performing development or maintenance, communications, networks, architectures, standards, protocols, and information resources repositories. The M&S Infrastructure component does not include the assets established and operated by organizations using M&S in support of their mission.

M&S Proponent
The organization responsible for initiating the development and directing control of the reference version of a model or simulation. The proponent will develop and execute a viable strategy for development and maintenance throughout the life cycle of the M&S and for directing the investment of available M&S resources. The M&S proponent serves as the advocate and final authority on their M&S.The M&S proponent will advise the DUSA(OR) on release of the M&S to foreign countries and will advise the MACOM or Organizational Release Authority for domestic release of M&S. Except where responsibilities are specifically designated to an acquisition official by DOD or DA policy e.g. DOD 5000.2 or AR 70-1, the M&S proponent is responsible for, but may delegate execution of: M&S Development, Configuration Management, Preparation and Maintenance of Simulation Object Models, as appropriate, all aspects of Verification and Validation (V&V), and maintenance of current information in all categories and repositories. The M&S proponent may be the same as the V&V proponent.

M&S Requirement
Modifications or development of a new tool or capability or significant enhancement to an existing tool or capability used in computer based simulation of military operations, or processes which contribute to military operations. Examples of military operations or processes that M&S are required include, but are not limited to, designing, analyzing, testing/evaluating, assessing, producing, sustaining military systems/processes, and providing training, exercise support, military operations support, planning tools, and mission rehearsal tools to support soldiers and units.

Pre-processor
A software (and sometimes hardware) unit which conditions or prepares data before the data is input into a model or simulation. Example: A code which converts metric data from cartesian (rectangular) coordinates to flight coordinates (Euler angles) prior to its being input into an aircraft or guided missile model.

Post-processor
A software (and sometimes hardware) unit which conditions data after it is output by a model or simulation, in order to adapt it to a human analyst/observer or to another model. (Example: A code which converts streams of metric measurement data from a simulation into a graphic representation of a scene as viewed from the perspective of an aircraft or missile.)

Reference version
The most recent version of a M&S which has been released for community use by, and under configuration management of, the M&S users group executive committee.

Research, Development, and Acquisition (RDA) Domain
One of the three domains for Army M&S applications. Includes all M&S used for design, development, and acquisition of weapons systems and equipment. M&S in the RDA domain are used for scientific inquiry to discover or revise facts and theories of phenomena, followed by transformation of these discoveries into physical representations. RDA also includes test and evaluation (T&E) where M&S are used to augment and possibly reduce the scope of real-world T&E.

Simulation
A method for implementing a model(s) over time.

Simulator

a. A device, computer program, or system that performs simulation.

b. For training, a device which duplicates the essential features of a task situation and provides for direct practices.

c. For DIS, a physical model or simulation of a weapons system, set of weapon systems, or piece of equipment which represents some major aspects of the equipment's operation.

Sponsoring Agency
The agency which sponsors the development or use of M&S utilizing either in-house, other government agency, or contract resources.

Sponsor's Study Director (SSD)
The person appointed by the sponsor to ensure that the study objectives are met. The sponsor's study director represents the sponsor in establishing the requirement for the study, providing technical direction for the sponsor to the organization performing the study, and providing guidance to the Studies Advisory Group (SAG), (contracting officer's representative (COR), or contracting officer. This person may be the chairperson of the SAG (see DA Pam 5-5).

Training Aids, Devices, Simulations, and Simulators (TADSS)
A general term used for multidimensional, stand alone, appended, and/or embedded training hardware and/or software systems.

Technical Architecture
A minimal set of rules governing the arrangement, interaction and interdependence of the parts or elements that together may be used to form an information system, and whose purpose is to insure that a conformant system satisfies a specified set of requirements.

Training, Exercises and Military Operations (TEMO) Domain
One of the three domains for Army M&S applications. TEMO includes most forms of training at echelons from individual simulation trainers through collective, combined arms, joint, and/or combined exercises. TEMO includes mission rehearsals and evaluations of all phases of war plans. Analysis conducted during the rehearsal or evaluation validates the plan as best as the simulation environment will allow.

Validation
The process of determining the extent to which a M&S is an accurate representation of the real-world from the perspective of the intended use of the M&S. Validation methods include expert concensus, comparison with historical results, comparison with test data, peer review, and independent review.

Validation Agent
The organization designated by the M&S sponsor to perform validation of a model, simulation, or federation of M&S.

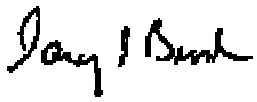
Verification
The process of determining that a M&S accurately represents the developer's conceptual description and specifications. The verification process evaluates the extent to which the M&S has been developed using sound and established software engineering techniques.

Verification Agent
The organization designated by the M&S application sponsor to perform verification of a model, simulation or federation of M&S.

V&V Proponent
The government agency responsible for ensuring V&V is performed on a specific M&S. The V&V proponent may be the same as the M&S proponent.

FOR THE COMMANDER:

OFFICIAL: CHARLES W. THOMAS
Major General, GS
Chief of Staff



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