

Administrative Change to DAFFPD 16-10, *Modeling and Simulation*

OPR: SAF/SAMS (DAF CMSO)

To reflect Headquarters Air Force reorganization and transfer of responsibilities from SAF/AQ to SAF/SA, the publication is changed in accordance with DAFMAN 90-161, *Publishing Processes and Procedures*, paragraph 7.8.2.

Certifying Official for DAFFPD 16-10 is hereby changed to “SAF/SA (Mr. Rowayne A. Schatz).” 26 April 2023.

Office of Primary Responsibility (OPR) is hereby changed to “SAF/SAMS (DAF CMSO).” 26 April 2023.

In the opening paragraph on page 1 the Chief Modeling and Simulation Office (CMSO) workflow and mailing address are hereby changed to “([SAF.SA-CMSO.Modeling-Simulation@us.af.mil](mailto:SAF.SA-CMSO.Modeling-Simulation@us.af.mil)) and 1570 AF Pentagon, Washington, DC 20330-1570.” 26 April 2023.

**Paragraph 3.1.1.1** is hereby removed and added to **paragraph 3.1.1**. 26 April 2023.

**Paragraph 3.1.1** is hereby changed to “3.1.1. The Assistant Secretary of the Air Force for Acquisition, Technology and Logistics (SAF/AQ), in collaboration with SAF/SA and SAF/SQ, will develop guidance and standards for modeling and simulation in support of acquisition processes and to accelerate digital engineering implementation.”. 26 April 2023.

**Paragraph 3.1.1.2** is hereby removed and added to **paragraph 3.1.6.2**. 26 April 2023.

**Paragraph 3.1.6** is hereby changed to “3.1.6. The Director, Office of Studies and Analysis (SAF/SA) will:”. 26 April 2023.

**Paragraph 3.1.6.1** is hereby added as “3.1.6.1. Serve as the DAF functional advocate for M&S Decision Support programs and initiatives.”. 26 April 2023.

**Paragraph 3.1.6.2** is hereby added as “3.1.6.2. Appoint a general officer or senior executive service civilian as the CMSO.”. 26 April 2023.

**31 August 2023**

**BY ORDER OF THE SECRETARY  
OF THE AIR FORCE**

**DEPARTMENT OF THE AIR FORCE  
POLICY DIRECTIVE 16-10**



**31 AUGUST 2021**

**Operations Support**

**MODELING AND SIMULATION**

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**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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(DAF CMSO)

Certified by: SAF/AQ  
(Ms. Darlene Costello)

Pages: 7

Supersedes: AFPD16-10, 23 January 2015

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This publication implements Department of Defense Directive (DoDD) 5000.59, *DoD Modeling and Simulation (M&S) Management*, and Department of Defense Instruction (DoDI) 5000.70, *Management of DoD Modeling and Simulation (M&S) Activities*. This publication applies to all civilian employees and uniformed members of the Regular Air Force, the Air Force Reserve, the Air National Guard, the United States Space Force, and those who are contractually obligated to comply with Department of the Air Force publications. This publication does not apply to the Civil Air Patrol. Send all recommendations for changes or comments to Chief Modeling and Simulation Office (CMSO) workflow ([SAF.AQ-CMSO.Modeling-Simulation@us.af.mil](mailto:SAF.AQ-CMSO.Modeling-Simulation@us.af.mil)) or to 1060 AF Pentagon, Washington, DC 20330-1060, through appropriate channels using AF Form 847, *Recommendation for Change of Publication*. Ensure all records generated as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System.

**SUMMARY OF CHANGES**

This document has been substantially revised and needs to be completely reviewed. Major changes include a complete reorganization of Department of the Air Force (DAF) Modeling and Simulation (M&S) oversight, authorities, and governance.

**1. Overview.** The DAF vision for M&S is to marshal collective modeling & simulation capabilities that are compatible and complementary, and affordably enable core DAF competencies to underpin advanced employment of power in air, space, and cyberspace. To that end, the Department created the Chief Modeling and Simulation Officer (CMSO), the executive office charged to oversee and update M&S regulatory guidance and enforce compliance throughout the DAF. The CMSO will address M&S challenges in air, space, and cyberspace to include the multi-domain interoperability within the electromagnetic spectrum to advance M&S capabilities needed in our current and future force. To achieve this, CMSO will devise policy and provide oversight to facilitate the acquisition, improvement, sustainment, and decision processes for integrated warfighting capabilities.

1.1. Models and simulations provide the warfighter a dynamic representation of reality allowing better understanding and interaction in the respective operating environment. DAF M&S capabilities support architecting and defining the holistic force design, establishing and deciding on programs of record, as well as supporting the entire system lifecycle and missions such as training, intelligence, test, logistics, analysis, experimentation, medical, and others. M&S takes a variety of forms including equations, computer programs, digital twins, emulators, scaled physical representations, simulators, and more. M&S consists of various elements including information technology, simulation centers, skilled personnel, techniques, processes, and services. M&S improves understanding and provides insights or predictive assessments; enables timely and realistic training, testing, and analysis; and increases systems quality while reducing costs and supporting force readiness.

1.2. To realize the full benefit of M&S to the warfighter, the DAF must enhance and expand the current M&S workforce, training, toolsets, and processes to create a robust M&S ability enabling accurate representations of multi-domain capabilities across all classification levels. Defining governance, standards, and reference architectures will allow the DAF to determine the required level and quality of M&S support for various activities and use cases. Building upon M&S' flexibility, repeatability, and extensiveness provides a unique capability to test future concepts and accelerates decision-making and ability to equip DAF personnel with advanced systems in shorter timelines.

1.3. To meet DAF M&S needs, a single M&S executive office is established. The principal for this responsibility is the CMSO. The CMSO will address DAF M&S challenges, promote commonality, efficiency, and interoperability of processes, tools, and environments; and coordinate technical solutions and investments.

## **2. Policy.**

2.1. The DAF will develop M&S capabilities to provide realistic models, tools, data, and simulation environments in air, space, and cyberspace, including electromagnetic spectrum interoperations, to enable acquisition life cycle activities, analysis, training, wargaming, and various other types and levels of decision-making at the system, system-of-systems, multi-domain, and cross-domain enterprise levels.

2.2. The DAF will coordinate and synchronize M&S efforts to maximize overall investments.

2.3. The DAF will develop, enhance, and expand M&S capabilities to acquire, improve, and sustain air, space, and cyberspace systems and provide decision quality information. The M&S capabilities will incorporate cybersecurity requirements to reflect the security constraints under which the real system must operate.

2.4. The DAF will identify and define M&S best practices and promote standards and protocols, including from industrial and Department of Defense (DoD) sources, to facilitate interoperability and use (and reuse) across DAF organizations. These activities occur through collaborative research, development, acquisition, and operation of M&S with the goal of providing capacity, capability, concurrency, connectivity, and fidelity.

2.5. DAF M&S activities shall:

2.5.1. Employ Model-Based System Engineering and Modular Open Systems Architecture approaches.

2.5.2. Maximize commonality, reuse, interoperability, exportability, scalability, efficiency, and effectiveness.

2.5.3. Ensure visibility and accessibility to existing models and simulation elements.

2.5.4. Ensure tools, data, and services are beneficial across DAF M&S communities.

2.5.5. Employ automation, standardization, and accountability through defined metrics.

2.6. The DAF will establish robust, persistent, agile, and authoritative environments and architectures to provide multi-domain force integration and interoperability ensuring sufficient fidelity to accurately support and augment live, virtual, and constructive activities across the DAF. The principles of integration and interoperability also include joint, interagency, and coalition operations.

2.7. The DAF will develop and use decision support M&S capabilities, coupled with digital engineering management techniques, tools, and methodologies at the appropriate level of fidelity, to examine problems and provide decision-makers with usable information in an effort to reduce uncertainty associated with decisions.

2.8. Within the context of available resources and requirements, the DAF shall develop, manage, and provide authoritative sources of truth in data centric constructs to support DoD M&S databases with the correct amount of sufficiently detailed metadata for ease of M&S products discovery.

2.9. Models, simulations, and associated data used to support DAF processes, products, and decisions shall undergo verification and validation throughout their lifecycles and attain accreditation for intended use. Verification and validation results will be documented and made accessible to DoD components and other government agencies.

### **3. Responsibilities.**

3.1. The Assistant Secretaries of the Air Force, United States Air Force (USAF) Deputy Chiefs of Staff, Assistant Chiefs of Staff, and United States Space Force (USSF) equivalents with M&S equities shall appoint M&S representatives to the M&S steering committee (M&S SC) and serve as functional advocates to applicable M&S communities.

3.1.1. The Assistant Secretary of the Air Force for Acquisition, Technology and Logistics (SAF/AQ) will:

3.1.1.1. Develop policy and standards while providing guidance and oversight for DAF acquisition.

3.1.1.2. Appoint a general officer or senior executive service civilian as the CMSO.

3.1.2. The CMSO will:

3.1.2.1. Serve as the single M&S executive with responsibilities crosscutting the DAF.

3.1.2.2. Oversee the development, implementation, propagation, and enforcement of M&S policies, guidance, rules, and standards.

3.1.2.3. Coordinate DoD and Joint Staff M&S issuances as lead for DAF M&S policy and guidance.

3.1.2.4. Promote commonality, re-use, interoperability, exportability, scalability, modularity, efficiency, and effectiveness of M&S capabilities across the DAF.

3.1.2.5. Facilitate implementation of best practices via access to M&S related knowledge and resources.

3.1.2.6. Expand M&S capabilities to enhance execution of core DAF missions.

3.1.2.7. Serve as lead for coordination of enterprise DAF M&S activities with the other services, Joint Staff, Office of the Secretary of Defense, multi-national partners, industry, and academia.

3.1.2.8. Serve as the DAF Secretariat executive-level representative to the DoD Modeling and Simulation Enterprise.

3.1.2.9. Serve as the Chair for the DAF M&S SC.

3.1.2.10. Ensure M&S requirements are included in analysis, training, intelligence, test and evaluation, and acquisition and experimentation policies, including those addressing joint and multi-national programs.

3.1.3. Deputy Chief of Staff of the Air Force, Manpower, Personnel, and Services (AF/A1) will serve as the functional advocate for M&S applications for force development.

3.1.4. Deputy Chief of Staff of the Air Force, Operations (AF/A3) will:

3.1.4.1. Act as designated Air and Space Natural Environment M&S Executive Agent. Reference Headquarters Air Force Mission Directive (HAFMD) 1-54, *Deputy Chief of Staff, Operations*; DoDD 5101.1, *DoD Executive Agent*; and DoDD 5000.59, *DoD Modeling and Simulation (M&S) Management*, and ensure CMSO awareness of associated efforts.

3.1.4.2. Serve as the functional advocate for the training aspects of Operational Test and Training Infrastructure M&S programs and initiatives.

3.1.5. Deputy Chief of Staff of the Air Force, Air Force Futures (AF/A5/7) will serve as functional advocate for M&S applications for Air Force future force design, wargaming, and experimentation.

3.1.6. Director, Studies, Analyses, and Assessments (AF/A9) will serve as the functional advocate for M&S Decision Support programs and initiatives.

3.1.7. Director, Air Force Test and Evaluation Directorate (AF/TE) will serve as the functional advocate for the test and evaluation aspects of M&S programs and initiatives.

3.1.8. DAF Chief Data Officer (SAF/CO) will:

3.1.8.1. Lead the DAF efforts to track data models and linkages between data assets.

3.1.8.2. Align and standardize data models.

3.1.8.3. Catalog DAF enterprise data assets and facilitate data accessibility.

3.1.8.4. Publish DAF OPEN Data Portal.

3.1.9. United States Space Force Chief Operating Officer (SF/COO) will:

3.1.9.1. Build, enhance, and expand M&S capabilities to acquire, improve, and sustain warfighting and intelligence capabilities, and provide decision quality information.

3.1.9.2. Coordinate with the CMSO on DAF enterprise M&S efforts and DAF M&S policy and guidance documents.

3.1.10. United States Space Force Chief Technology and Innovation Officer (SF/CTIO) will:

3.1.10.1. Develop a framework and governance structure for USSF including live, virtual, and constructive models and simulations.

3.1.10.2. Develop policy and directives for tool development and management.

3.1.11. United States Space Force Chief Strategy and Resourcing Officer (SF/CSRO) will serve as the USSF lead for modeling, simulation, analysis, experimentation, and wargaming to explore current and future issues impacting doctrine, force structure, capabilities, and concepts.

3.2. The above organizations do not constitute a complete list of M&S stakeholders. As this publication evolves, additional entities will be included per their mission directive.

3.3. Major Commands and Organizations. USAF major commands, USSF field commands, and direct reporting units with M&S equities shall identify and develop requirements and capabilities within their core functional areas, missions, and assigned units. These organizations shall also appoint a representative to the DAF M&S governance structure and applicable M&S communities (e.g., training community, test community, acquisition and experimentation community, intelligence community). Commanders retain their authority to prioritize requirements and manage their resources in conjunction and coordination with the CMSO for DAF M&S efforts.

FRANK KENDALL  
Secretary of the Air Force

## Attachment 1

### GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

#### *References*

DoDD 5000.59, *DoD Modeling and Simulation (M&S) Management*, 8 August 2007

DoDD 5101.1, *DoD Executive Agent*, 3 September 2002

DoDI 5000.70, *Management of DoD Modeling and Simulation (M&S) Activities*, 10 May 2012

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

Department of the Air Force Pamphlet (DAFPAM) 63-128, *Integrated Life Cycle, Management*, 3 February 2021

HAFMD 1-54, *Deputy Chief of Staff, Operations*, 8 September 2015

*DoD M&S Glossary*, <https://www.msco.mil/MSReferences/Glossary/MSGlossary.aspx>).

#### *Adopted Forms*

AF Form 847, *Recommendation for Change of Publication*

#### *Abbreviations and Acronyms*

**AF**—Air Force

**AFI**—Air Force Instruction

**AFPD**—Air Force Policy Directive

**CMSO**—Chief Modeling & Simulation Officer

**DAF**—Department of the Air Force

**DAFPAM**—Department of the Air Force Pamphlet

**DAFPD**—Department of the Air Force Policy Directive

**DoD**—Department of Defense

**DoDD**—Department of Defense Directive

**DoDI**—Department of Defense Instruction

**DOTmLPP-P**—Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, Facilities, and Policy

**HAF**—Headquarters Air Force

**HAFMD**—HAF Mission Directive

**M&S**—Modeling and Simulation

**OPR**—Office of Primary Responsibility

**USAF**—United States Air Force

**USSF**—United States Space Force

### *Terms*

*The following terms and their definitions are for the purposes of this document.*—Where no citation appears, the terms originate from several sources or from common usage. Terms contained in this document and not defined in the DoD M&S Glossary <https://www.msco.mil/MSReferences/Glossary/MSGlossary.aspx> are specified below.

**Acquisition**—The conceptualization, initiation, design, development, test, contracting, production, deployment, and disposal of a directed and funded effort that provides a new, improved, or continued materiel, weapon, information system, logistics support, or service capability in response to an approved need. (DAFPAM 63-128)

**Capability**—The ability to complete a task or execute a course of action under specified conditions and level of performance through combinations of means and ways across the doctrine, organization, training, materiel, leadership & education, personnel, facilities, and policy (DOTmLPP-P) to perform a set of tasks to execute a specified course of action. (DAFPAM 63-128)

**Decision Support**—The process of gathering, generating, filtering, optimizing, and organizing mined information to support leadership decision making.

**Requirement**—An established need justifying the timely allocation of resources to achieve a capability to accomplish approved military objectives, missions, or tasks.

**Stakeholders**—M&S stakeholders are individuals and organizations who are developers and/or users of DAF-related modeling & simulation capabilities. This includes regular and reserve Air Force and Space Force personnel, DAF civil servants, support contractors, and the formal organizations and informal professional communities to which these individuals belong.

**Standard**—A rule, principle, or measurement established by authority, custom, or general consent as a representation or example.