



**DEPARTMENT OF THE NAVY**  
HEADQUARTERS UNITED STATES MARINE CORPS  
3000 MARINE CORPS PENTAGON  
WASHINGTON DC 20350-3000

MCO 4700.4A  
I&L (LPS)  
8 May 2026

MARINE CORPS ORDER 4700.4A

From: Commandant of the Marine Corps  
To: Distribution List

Subj: ADVANCED MANUFACTURING POLICY

Ref: See enclosure (1)

Encl: (1) References

1. Situation. The Marine Corps' approach to sustainment must change. The enemy is now capable of targeting our supply chains and the industrial base. To address this and other operational factors, the Service must immediately integrate Advanced Manufacturing (AdvM) technologies, at scale, as one of the tools in an evolving portfolio of solutions arrayed across each combatant command to enhance lethality and survivability. AdvM must become an embedded core competency so that Marines are further empowered to seize and maintain the initiative. All Marines - regardless of military occupational specialty (MOS) - are encouraged to experiment and submit prototypes for AdvM solutions.

2. Cancellation. MCO 4700.4, the "Additive Manufacturing Policy."

3. Mission. Commanders at all levels shall develop and employ AdvM technologies to the fullest extent possible in order to enhance lethality and survivability. This Order reissues Service policy and defines roles and responsibilities for the immediate integration of AdvM. This Order applies to all ground equipment, unmanned vehicles and systems (UxS), additive and expeditionary construction, and forms of ground-based ammunition. This Order also applies to all Group 1 and 2 advanced manufactured small Unmanned Aircraft Systems (sUAS) and components, which are incorporated in accordance with reference (a). This Order is not applicable to Group 3-5 Unmanned Aircraft Systems (UAS) or manned aviation equipment which are governed by the Naval Aviation Maintenance Program (NAMF) and Naval Air Systems Command (NAVAIR). This Order is in accordance with references (a) through (ar).

4. Execution

a. Commander's Intent and Concept of Operations

(1) Commander's Intent. Commanders at all levels develop and employ AdvM technologies to the fullest extent possible in order to enhance lethality and survivability. The desired end state is an increased adoption, utilization, and proficiency of AdvM capabilities in order to increase tactical and operational capabilities and resiliency. This will be accomplished by placing AdvM capabilities at or near the point of need, employing AdvM to improve defenses against an adversary's air and missile

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

systems, using AdvM to adapt to supply chain dynamics and disruptions, and integrating AdvM with emerging technology fields and other technological advancements.

(2) Concept of Operations

(a) This Order will be executed through a Concept of Operations that, to the maximum extent practicable, decentralizes manufacturing capabilities to the point of need. The primary effort is the establishment of advanced manufacturers spanning the Fleet Marine Forces (FMs) and Organic Industrial Base (OIB) enabled by a robust digital thread that allows for the secure transmission of technical data. The intended result of this effort includes the following three primary operational outcomes:

1. Sustained Offensive Momentum. The Marine Corps' network of AdvM capabilities enables commanders to rapidly repair battle-damaged equipment and replace attritable systems in order to sustain offensive action and mitigate logistical constraints.

2. Accelerated Threat Response. The Marine Corps' network of AdvM capabilities serves as hubs of innovation, using rapid prototyping to develop and field solutions to defeat emergent threats or take advantage of a newly discovered critical vulnerability.

3. Enhanced Survivability. The Marine Corps' network of AdvM capabilities provides commanders with organic and redundant sources of supply, increasing the independence of dispersed units operating within an enemy's weapon engagements zone.

(b) AdvM currently consists of additive (multi-dimensional printing and construction), subtractive (removal of material), welding, microfabrication (e.g., sensors and microelectronics), and digital engineering and manufacturing (e.g., leveraging software to create digital models, design, and geometric code to create a 'digital twin' that is a virtual replica of the actual physical object). The following five pillars of AdvM implementation are intended to accomplish the primary operational outcomes of this Order:

1. Pushing authorities down to the lowest levels of the FMF to provide the operational resiliency and capacity required to persist and survive in a future conflict.

2. The machines, materials, training, and support equipment exist to enable structural repair, rapid fabrication, and recovery of equipment in support of operations, especially when geographically isolated.

3. Acquisition strategies and product support strategies to protect Service interest over the entire life cycle of an item, through acquiring technical data packages (TDPs) and appropriate license rights.

4. Documented business processes provided via Navy and Marine Corps (NAVMC) manual accompanying this policy focused on Ground Sustainment, Facilities, and Non-Traditional Use-Cases.

5. The cataloging and requisitioning processes that interface with existing Logistics Information Technology (LogIT) Portfolio.

b. Subordinate Element Missions

(1) General Information. Deputy Commandant for Installations and Logistics (DC I&L) is the Executive Agent for AdvM. As such, DC I&L oversees AdvM integration across the Marine Corps to enhance the Service's ability to sustain a combat credible force in line with the concept of Force Design.

(2) Deputy Commandant for Installations and Logistics (DC I&L)

(a) Authorize and encourage the incorporation of AdvM solutions for all ground equipment, UxS, additive and expeditionary construction, and forms of ground-based ammunition for which the Marine Corps has appropriate technical data rights that can be manufactured by Marines in expeditionary environments or at or near the point of need. In line with the intent of reference (b), the objective during both training and conflict is to manage risk, not to eliminate it entirely. Commanders are both empowered and encouraged to leverage AdvM technologies to regenerate combat power and sustain the fight. Only those AdvM items that a commander determines its failure would likely result in loss of life, limb, eyesight, or catastrophic damage to a principal end item (PEI) are excepted from this direction.

(b) Coordinate with Deputy Commandant for Training and Education (DC T&E), as executive agent for range policy, and Deputy Commandant for Plans, Policies and Operations (DC PP&O) to leverage reference (a) to remove restrictions that limit the training, experimentation, and employment of Group 1 and 2 advanced manufactured sUAS, to include those platforms considered human out of the loop, aboard bases and stations. Enable the utilization of Marine Corps Commercial Off-The-Shelf (COTS) manufactured and/or assembled sUAS for research, evaluation, training, testing, or analysis related to electronic warfare, cybersecurity, or sUAS / counter-small Unmanned Aircraft Systems (c-sUAS) technology.

(c) Pursue a 'digital' Global Positioning Network (GPN) as part of larger GPN efforts and incorporate AdvM equipment and materials into forward positioning plans to enable manufacturing of warfighting requirements closer to the point of need. Forward position the equipment, raw material, and/or components required for AdvM, including but not limited to: improvised munitions, Group 1 and 2 advanced manufactured sUAS, field wire analog phones, and compact directional antennas and repeaters to improve communications security and range.

(d) Leverage the Department of War's (DoW's) Regional Sustainment Framework (RSF) and Defense Logistics Agency's (DLA) Global Resiliency Initiative (GRI) to provide AdvM and fabrication capabilities at forward positioned sites.

(e) Establish standardized processes to track the FMF's production and expenditure of AdvM ground-based ammunition, enabling the joint force to better understand and plan for unconstrained Class V demand requirements during conflict. Coordinate with Marine Corps Systems Command (MARCORSYSCOM) program offices to ensure appropriate adjudication of ammunition and explosives (A&E) and explosive safety criteria.

(f) Identify and publish a list of existing joint and combined AdvM capabilities to enable the FMF to: 1) leverage the capabilities of the joint and combined force, 2) determine the locations where no existing

capability exists, and 3) align priority of effort with National Security Strategy (NSS) and National Defense Strategy (NDS) objectives.

(g) Leverage public-private partnerships and host nation capacity to accelerate delivery of necessary temporary facilities via additive construction not satisfied by the military construction (MILCON) process in a timely manner.

(h) Leverage joint and combined engineering research and development agencies (e.g., Office of Naval Research (ONR), Naval Surface Warfare Center (NSWC) Carderock, etc.) and public-private partnerships to enable the manufacture of waterborne items (e.g., Foam Raiding Crafts (FRCs), "port style" piers for equipment offload and floating barges for mobility, etc.).

(i) Increase the utilization of AdvM across the defense industrial base (DIB) and OIB. Leverage public-private partnerships and incentivize capital investments across businesses of all sizes within the industrial base to enable rapid, scalable, and flexible sourcing and support for mission-critical data, parts, and/or platforms.

(j) Establish procurement strategies and processes for third-party vendors to manufacture parts using government furnished TDPs. These strategies and processes should address, at a minimum, restrictions on the use of the TDPs by third party vendors to include, but not limited to: security classification, intellectual property (IP) rights, and distribution limitations and export control warnings required by reference (d).

(k) Establish processes consistent with acquisition laws and regulations, and the Government's rights in the technical data that: 1) substantially accelerate the rate at which critical repair parts are reverse engineered and accompanying TDPs are uploaded into the Digital Manufacturing Data Vault (DMDV); and 2) prioritize reverse engineering requests from across the Service. Use the equipping priorities published by DC PP&O to determine prioritization and/or queuing order, as required.

(l) Facilitate the establishment of National Stock Numbers (NSNs) for AdvM raw materials, where lacking, to expedite procurement and enhance DLA demand forecasting efforts.

(m) Prior to Program Objective Memorandum (POM) submissions, provide Deputy Commandant for Programs and Resources (DC P&R) with the programmed budgeting costs associated with an AdvM Marine Corps Program Code (MCPC) that addresses current year AdvM spending across the Service that is not associated with a program of record (POR) and its budget estimates across the Future Years Defense Program (FYDP). Ensure POM submissions for this MCPC incorporate costs associated with the following, at a minimum: 1) hardware and software costs for COTS and Government-Off-The-Shelf (GOTS) solutions, 2) Manufacturing Attributable Systems at Scale (MASS), 3) Data-as-a-Service (DaaS) solutions via public-private partnerships, 4) machine tool recapitalization, 5) research, education, and training opportunities within the AdvM commercial sector and academia, and 6) the procurement of TDPs required for effective AdvM. Consider including an estimate of the fully incumbered cost of an enterprise AdvM strategy for inclusion in the POM submission (e.g., other requirements not planned or solely funded by the MCPC that would rely heavily on other investments to make whole).

(n) Provide contracting support in accordance with reference (e). Facilitate establishing Blanket Purchase Agreements (BPAs) and integrating Marines with simplified acquisitions process purchasing authority directly in the supply chain.

(o) Leverage DLA's Tailored Logistics Support Program (TLSP) to enable access to the latest commercial equipment, services, and training. Communicate gaps in TLSP's ability to contract incidental services (e.g., sUAS manufacturing training), on behalf of the FMF, during forums with Director, DLA. Align priority of efforts to NSS and NDS objectives.

(p) Revise existing ground maintenance and supply policies to account for AdvM as a legitimate source of supply. Priority of effort includes revisions to instructions and guidance required to enable the FMF to manufacture or procure sUAS / c-sUAS components, at scale, from commercial vendors.

(q) Ensure AdvM policies remain in compliance with Federal, DoW, Department of the Navy (DON), and United States Marine Corps (USMC) cybersecurity policies.

(r) Ensure AdvM policies are in compliance with Federal acquisition law and DoW and DON acquisition regulations.

(s) Ensure the LogIT portfolio enables the transmittal of technical data between Accountable Property Systems of Record (APSRs) and the Service's digital repository. In concert with MARCORSYSCOM, explore the utilization of a Digital Data Management System (DDMS).

(t) In coordination with the OIB, leverage the DoW's AdvM Competitive Advantage Pathfinder initiative to better enable joint and combined operations in expeditionary environments.

(u) Leverage experienced composites experts within academia to support and advance large scale AdvM. Liaise with ONR to enable the Service to leverage their expertise and the utilization of Innovative Naval Prototype (INP) programs, among others.

(v) Represent Marine Corps AdvM equities in the DoW's Joint Defense Manufacturing Council (JDMC), DoW Manufacturing Innovation Institutes (MIIs), the United States (U.S.) Navy Manufacturing Technology (ManTech) program, DLA ManTech, and in forums with the Office of the Under Secretary of War for Acquisition and Sustainment and the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN (RD&A)). Among other priorities and objectives, advocate for: 1) DoW reciprocity to enable use of TDPs approved by an adjacent Service, 2) the establishment of relationships with commercial industry (similar to the model of the Volunteer Inter-modal Support Agreement) that will contractually accommodate surge capacity via AdvM for expendable and attributable littoral connectors and reconnaissance crafts, and 3) the enabling of the United States Army Corps of Engineers (USACE), Engineering Research and Development Center - Construction Engineering Research Laboratory (ERDC-CERL) to develop expeditionary codes within reference (f) for additive construction.

(w) Refine existing Field Supply and Maintenance Analysis Office (FSMAO) and Inspector General of the Marine Corps checklists to evaluate unit compliance with the integration of AdvM as a source of supply to accelerate

manufacture and repair capabilities. Provide all Marine Corps Forces (MARFORs) with the updated checklists.

(x) Appoint a section as the Service lead within Headquarters, United States Marine Corps (HQMC) responsible for AdvM policy, governance, and advocacy.

(y) In coordination with MARCORSYSCOM and as informed by the FMF and other stakeholders, develop a prioritized list of critical readiness parts, on a yearly basis, in order to focus AdvM requirement efforts.

(3) Commander, Marine Corps Systems Command (MARCORSYSCOM)

(a) As part of the Service's modernization efforts, coordinate with the ASN (RD&A) and refine existing acquisition policies to include the consideration of future AdvM requirements. Ensure refinements empower the FMF to pursue optimal sourcing solutions in "manufacturing capabilities" that will enhance their ability to fight - especially when geographically isolated.

(b) Serve as the Marine Corps' sole technical authority in establishing, monitoring, and approving technical standards, tools, and processes for all ground-approved applications of AdvM in conformance with applicable DoW and DON policy, requirements, architectures, and standards.

(c) Implement acquisition strategies that incentivize industry to provide technical data for parts and systems that are suitable for production using alternative materials and/or manufacturing methods.

(d) Incorporate utilization of AdvM technologies in existing policies (e.g., MARCORSYSCOM Acquisition Guidebook) and during the development of acquisition strategies and plans.

(e) Prioritize the negotiation of contract provisions for IP deliverables and associated license rights to enable employment of AdvM at scale.

(f) Develop Service-level policy to streamline approvals and authorize the use of alternative materials (e.g., advanced polymers), to include instances in which the Service is not the Primary Inventory Control Activity (PICA). Develop Service-level policy to streamline approvals and authorize the use of alternative manufacturing methods for traditionally manufactured Original Equipment Manufacturer (OEM) parts.

(g) Explore the utilization of a DDMS to ingest, store, and display technical data received from an OEM to accelerate the rate at which product level TDPs can be retrieved and utilized by the FMF. The FMF's access to and authority to use OEM TDPs for AdvM will be limited by the Government's rights in the OEM TDPs.

(h) Use established processes to catalog AdvM parts to ingest into the AdvM digital repository. Ensure parts that can, from a technical perspective, be manufactured via AdvM and for which the Service has unlimited rights, government purpose rights, or a specially negotiated license to the technical data are identified in APSRs, by NSN and/or part number, and are uploaded into the digital repository to enable cataloging, requisitioning, tracking, transacting, configuration control and expensing.

(i) Integrate the Service's digital repository with, to the maximum extent possible and in accordance with reference (g), adjacent Service AdvM repositories and the DoW's Joint Additive Manufacturing Model Exchange (JAMMEX). Facilitate interoperability through the determination of technical, legal, and security barriers that currently prohibit allies from accessing TDPs within the Marine Corps' AdvM digital repository.

(j) Liaise with the office of the Under Secretary of War for Acquisition and Sustainment to influence the development of standard Defense Federal Acquisition Regulation Supplement (DFARS) clause(s) for current and future contracts to enable AdvM consistent with the purpose of this Order.

(k) In accordance with reference (h), provide DC I&L with a monthly report on the number and status of critical parts within the digital repository that are considered work-in-progress awaiting engineering qualification/certification.

(l) As informed by a prioritized list of critical parts developed by DC I&L, provide DC I&L with the associated costs to procure "digital class IX blocks" on behalf of all O-6 and O-5 FMF commanders to better inform MCPC budgeting as well as manufacturing in Degraded, Denied, Intermittent, or Limited (DDIL) environments.

(m) Provide IP and technical data rights training to Program Offices and their Contracting Officers to assist in their development of more effective acquisition, contract, and sustainment strategies.

(n) For POR systems, perform periodic penetration testing on fielded Information Technology (IT) systems across MARFORs - with particular emphasis on firmware exploitation and adversarial manipulation - to enable a more resilient security framework that addresses a wide range of threats and vulnerabilities across on-premises servers and cloud-based environments.

(4) Deputy Commandant for Combat Development and Integration (DC CD&I)

(a) As part of the Service's modernization efforts, leverage the intent of reference (i) to refine existing capability planning and requirements development policies in order to enhance AdvM development efforts consistent with the intent of this Order. Ensure policy updates empower the MARFORs to pursue what they assess to be optimal sourcing solutions in AdvM that will enhance their ability to fight - especially when geographically isolated.

(b) Incorporate AdvM as a method of sustainment into all new requirements documents or updates to requirements documents to promote Service wide integration of AdvM, at scale. As a part of this:

1. Explore the possibility of a compact, portable, and durable plastic recycling platform capable of converting standard plastic waste into high-quality filament or stock that is suitable as raw material for use with multi-dimensional printers.

2. Explore the possibility to superheat, pulverize, and reuse existing metals and other materials as part of Class VII (major end items) disposal plans.

3. Explore the possibility for AdvM in the fabrication of circuit cards from specification data established by the Defense Microelectronics Activity (DMEA).

(c) Establish a requirement, at each O-6 and O-5 FMF led unit, for access to a network of AdvM capabilities. Given the rate of technological change, implied with "access to a network" is that sourcing solutions are not required to be a POR.

(d) Lead Service efforts to establish, test, and disseminate - via the digital repository - ground-based ammunition that can be manufactured in expeditionary environments. Explore the use and fielding of binary energetics.

(e) Lead Marine Corps Science and Technology (S&T) efforts and represent Service equities with the DoW sponsored Manufacturing United States of America (USA) Network of Institutes. Explore the use of modern and emerging technologies ideal for point-of-need expeditionary environments (e.g., Daylight Polymer Printing (DPP) to enable the curing of resins via visible light/sunlight).

(f) Explore partnerships with industry partners, manufacturing institutes, and universities to ensure access to evolving technologies, and cross-pollination of ideas between the public and private sectors relative to the adoption of AdvM in the military.

(g) Incorporate "manufacturing capabilities" via AdvM into Expeditionary Advanced Base Operations (EABO) concepts of support, making point-of-need manufacturing a baseline planning factor alongside pre-positioned stocks.

(h) Conduct a Construction Scale Additive Manufacturing (CSAM) study and review recently conducted studies to determine suitable use-cases for CSAM.

(i) Explore the creation and assignment of AdvM-centric Joint Capability Areas, naval tasks, and Mission Essential Tasks (METs) to enable the concepts of dynamic force employment and distributed lethality.

(j) Continue integrating AdvM in the Total Force Structure Process by coordinating with DC I&L, Commanding General, Marine Corps Logistics Command (MARCORLOGCOM), Deputy Commandant for Manpower and Reserve Affairs (DC M&RA), and MARCORSYSCOM to ensure Total Force Structure Management System (TFSMS) data reflects the most current and accurate information available to enable effective management of AdvM.

(k) Coordinate with DC I&L to leverage the Service Level Experimentation Campaign Plan to prioritize the resources required for FMF AdvM and UxS Battle Labs.

(5) Deputy Commandant for Plans, Policies and Operations (DC PP&O)

(a) Continue to pursue security and cooperative logistics arrangements with allies and partners to enable them to become an affiliate in the network of AdvM capabilities.

(b) Continue to develop and emplace AdvM agreements with allies and partners. Priority of effort are those aligned to NSS and NDS objectives.

(6) Deputy Commandant for Manpower and Reserve Affairs (DC M&RA)

(a) Monitor overall health of occupational specialties required to support the employment of AdvM.

(b) Staff personnel, as appropriate, with AdvM backgrounds to billets in accordance with the intent of this Order.

(c) To the maximum extent practicable, track AdvM-related skill sets within the reserve population and coordinate with other stakeholders, as appropriate, to facilitate the improvement and development of AdvM within the Marine Corps.

(7) Deputy Commandant for Programs and Resources (DC P&R)

(a) As part of the Service's modernization efforts, refine existing resource policies to enhance AdvM consistent with the purpose of this Order. Ensure refinements empower the MARFORs to pursue what they assess to be optimal sourcing solutions in "manufacturing capabilities" that will enhance their ability to fight - especially when geographically isolated.

(b) In coordination with DC I&L, develop and refine fiscal and programming guidance to enable the use of funding authorities for additive construction efforts that support AdvM initiatives. As required, provide analysis and support to DC I&L for any congressional or legislative requirements related to the appropriation and allocation of funds to be used in this manner.

(c) Assist DC I&L and MARCORSYSCOM on any independent cost assessments on business case analyses related to AdvM in order to assess the total lifecycle costs, cost-avoidance, and operational benefits of AdvM, including any impact on readiness, supply chain resilience, and operational flexibility.

(d) Coordinate the movement of the AdvM MCPC to the Sustainment Enterprise Programming Team (SUS EPT) to centrally fund AdvM activities through the POM process and enable DC I&L to execute Force Sustainment as delineated in reference (e).

(e) Within the Planning, Programming, Budgeting, and Execution process, and in coordination with DC CD&I's capability prioritization, align resources to support the Marine Corps' AdvM strategy consistent with the intent of this Order. This includes ensuring that interdependent programs, including reserve capabilities like the Marine Innovation Unit (MIU) are appropriately considered in the overall resourcing strategy.

(f) In coordination with DC PP&O and MARCORSYSCOM, identify assets protected by a Special Access Program (SAP) that may benefit from AdvM capabilities. Utilizing AdvM for such assets may require additional security measures pursuant to reference (ao). For such assets, evaluate the need for additional security guidelines or policies to protect designs or technical data during the AdvM process, including the reverse engineering process. As

appropriate, and in a manner consistent with the intent of this Order, advise Program Security Officers regarding additional security requirements, if any, for the AdvM repair or sustainment of an asset covered by an SAP.

(8) Deputy Commandant for Information (DC I)

(a) Provide the MARFORs with policy, guidance, and procedures for the implementation of the Information Technology Procurement Review and Approval System (ITPRAS) requests which support the acquisition of AdvM hardware and software. Where possible, remove requirements for acquisition of AdvM, as well as sUAS, hardware and software that function in a disconnected state from DoW networks.

(b) Provide cybersecurity policy, guidance, and support to Network Activities/Battalions and Information System Security personnel in their efforts to obtain Authorization for both AdvM hardware and software in connected and disconnected states, to include authorization to test in a controlled environment.

(c) Provide the MARFORs with policy, guidance, and procedures that address AdvM operational security during combined operations. This includes allied or partner use of unencrypted Global Positioning System (GPS) utilizing civilian component Coarse/Acquisition (C/A) signals.

(d) Empower the MARFORs with the means to update AdvM software and radio waveforms.

(e) Empower the MARFORs with the means to use UxS platforms through the rapid prototyping and deployment of modified AdvM UxS containing updated hardware and software configurations.

(f) Ensure Service efforts are aligned with the DoW Digital Manufacturing Exchange (DMX) to create a standardized way to securely access and stream AdvM data, rather than relying on individual AdvM machine configurations.

(9) Commander, Marine Corps Forces Cyberspace Command

(a) Ensure that cyber-physical infrastructure is secure and capable of supporting the employment AdvM capabilities through public-private partnerships.

(b) Assist the MARFORs with own-force sensing / signature management plans for AdvM capabilities. Provide DC CD&I with the heat signature of existing AdvM programs of record to optimize capability development, resource priorities, and acquisition decisions across the Service.

(10) Deputy Commandant for Training and Education (DC T&E)

(a) Continue implementation of Expeditionary Fabricator MOS (1321) initiative at formal learning centers.

(b) Assess where to incorporate hands-on, virtual, and/or hybrid AdvM training into existing course curriculum to enable FMF units, particularly those without 1321 structure, to leverage the network of AdvM capabilities.

(c) In coordination with relevant stakeholders, develop, implement, update, and maintain required curriculums, programs of instruction, liaison programs, training modules, and other training and education initiatives in support of this Order.

(11) Director, Marine Corps Safety Division. Provide the MARFORs and DC I&L, Logistics Policy and Sustainment Branch (LPS) with AdvM mishap information and lessons learned, as events occur.

(12) Counsel for the Commandant

(a) Provide authoritative legal guidance on issues related to AdvM, including the use of TDPs for the following situations: reverse engineering, expeditionary construction, manufacturing of replacement parts and components, and emergency repair and overhaul. Advise those who develop requirements, Program Managers, and contracting officers in securing appropriate TDPs that enable the Service to sustain its equipment.

(b) Provide legal support to negotiate IP technical data rights in acquisition and sustainment contracts.

(13) Legislative Assistant to the Commandant of the Marine Corps. Synchronize service action and strategic messaging on AdvM issues requiring legislative action.

(14) Marine Corps Forces (MARFORs) / Fleet Marine Force (FMF)

(a) Manage and employ AdvM equipment, material, and/or subsequently manufactured/fabricated items in direct support of the warfighter. Develop and implement internal command policies and procedures to facilitate the execution of this Order.

(b) In a manner consistent with the intent of this Order, continue to submit Universal Needs Statement (UNS), in accordance with reference (u). Consistent with laws and regulations, and in coordination with other relevant stakeholders, leverage the private sector as part of the network of AdvM capabilities to fulfill operational requirements.

(c) Continue to leverage MARCORSSYSCOM for sustainment issues, technical refreshes, licenses, and training associated with existing PORs.

(d) Leverage the authorities of reference (k) to accelerate the development of AdvM use cases for the employment of additive expeditionary construction.

(e) Define the personnel requirements for AdvM and UxS Battle Labs and register the requirement with DC CD&I for permanent structure and resourcing. Focus on prototyping, experimentation, and training (PET) to "manufacture capabilities" via AdvM.

(f) When pursuing a ground-based ammunition AdvM capability, ensure only appropriately trained and qualified personnel are authorized to conduct such development and experimentation and ensure they do so in a manner consistent with other requirements or regulations governing ground-based ammunition.

(g) Convert existing Additive Manufacturing Training Centers (AMTCs) into AdvM and UxS Battle Labs. Focus on facilitating execution of AdvM policies and standard operating procedures as well as manufacturing AdvM and UxS Battle Lab solutions at scale.

(h) Leverage Operations, Activities, and Investments (OAI)s to support AdvM experimentation. Identify AdvM use-cases that can be deployed at scale to enhance mobility and force closure, operational sustainment, and survivability (e.g., lightweight and man-packable solutions that enhance the thermal camouflage of personnel and equipment). Leverage OAI)s as a rehearsal for conflict and experiment with "manufacturing capabilities" via AdvM to optimize capability development, resource priorities, and acquisition decisions across the Service.

(i) Leverage OAI)s to determine what agreements are required to facilitate joint and combined interoperability using parts manufactured via AdvM, and any limitations in those agreements on manufacturing overseas.

(j) Utilize field ordering officers / pay agents to procure raw materials (e.g., metals, plastics, cement, etc.) for use in AdvM through the local community, as required.

(k) Information Systems Security Managers (ISSMs): establish and manage the cybersecurity program for AdvM systems within a command, site, system, or enclave in accordance with DoW, DON, and Marine Corps cybersecurity guidance and policies. Adhere to cybersecurity aspects of command purchased AdvM equipment (e.g., non-POR) to avoid introducing vulnerabilities to Marine Corps data and/or information. Ensure obligation of funds for the procurement of AdvM COTS solutions occurs after receiving an approved ITPRAS. These requirements do not include IT operated by contractors or other entities on behalf of the Service which is not connected to Marine Corps enterprise networks.

(l) Commanders must ensure appropriate cybersecurity personnel perform periodic cyber risk assessments, in accordance with the Risk Management Framework, on AdvM systems or devices to identify cybersecurity vulnerabilities. If operating an asset covered by an SAP, coordinate with the designated Program Security Officer for appropriate security requirements, if any, for the AdvM repair or sustainment of such asset.

(m) AdvM System Owners and Administrators: comply with cybersecurity safeguards and assurances for systems and devices under their control as well as Assessment and Authorization requirements. Commanders must ensure AdvM System Owners and Administrators appropriately manage accounts, network rights, and access to information systems and equipment.

(n) Establish processes to ensure Computer-Aided-Design (CAD) / Computer-Aided-Manufacturing (CAM) files provided to, or from, third parties are not inappropriately manipulated. If a CAD or CAM file is associated with an asset covered by an SAP, prior to the creation of the CAD or CAM file, coordinate with the designated Program Security Officer to receive appropriate security guidance.

(o) Support AdvM experimentation and modernization efforts conducted through the MIU, 4th Marine Logistics Group, and other units in accordance with reference (l). This task is specific to Marine Corps Forces Reserve (MARFORRES).

(p) Identify Reserve Marines that work in an industry associated with AdvM to bolster Service efforts aligned with Talent Management. Communicate findings to DC M&RA to enable canvassing and employing those Marines at the point of need. This task is specific to MARFORRES.

(q) Develop and implement internal command policies and procedures to facilitate execution of this Order.

(r) When operating Group 1 and 2 sUAS using AdvM Components, adhere to DC PP&O's Group 1 and 2 sUAS policies, as the HQMC Service Lead, to include NAVAIR interim flight clearance process.

(s) Pursuant to reference (a), O-6 commanders and equivalents may grant authority to operate (ATO), and may procure, test, and train with Group 1 and 2 sUAS that are compliant with statutory limitations of Subtitle B of reference (c). This authority may not be further delegated. Such sUAS must remain in closed loop cyber networks, cordoned from DoW networks. Additionally, pursuant to reference (a), O-6 commanders and equivalents are authorized to operate or procure the absolute minimum quantities of critical components from covered foreign entities or equipment from covered foreign entities (as defined in reference (c)) necessary for the limited purposes of research, training, testing, analysis for electronic warfare, or development of UAS or counter-UAS technology, as permitted by section 1823(b)(1) of reference (c). Equipment procured from covered foreign entities or containing critical components from covered foreign entities is untrustworthy and must not be able to transfer or download data from a foreign entity or otherwise pose a national cybersecurity risk.

(t) As AdvM components are developed, assemble and submit TDPs for such components via the DDMS for program office review and approval and enterprise adoption.

## 5. Administration and Logistics

a. Records Management. Records created as a result of this Order shall be managed according to National Archives and Records Administration (NARA)-approved dispositions in reference (m) to ensure proper maintenance, use, accessibility, and preservation, regardless of format or medium. Records disposition schedules are located on the Department of the Navy/Assistant for Administration (DON/AA), Directives and Records Management Division (DRMD) portal page at: <https://www.secnav.navy.mil/doni/Records%20Management%20Schedules/Forms/AllItems.aspx>. Refer to reference (n) for Marine Corps records management policy and procedures.

b. Privacy Act. Any misuse or unauthorized disclosure of Personally Identifiable Information (PII) may result in both civil and criminal penalties. The DON recognizes that the privacy of an individual is a personal and fundamental right that shall be respected and protected. The DON's need to collect, use, maintain, or disseminate PII about individuals for purposes of discharging its statutory responsibilities shall be balanced against the individuals' right to be protected against unwarranted invasion of privacy. All collection, use, maintenance, or dissemination of PII shall be in accordance with the Privacy Act of 1974, as amended [reference (o)] and implemented per references (p) and (ap).

- c. Forms. There are no forms used in this Order.
- d. Updates. Updates made to this Order must be done in accordance with the current iteration of reference (aq).
- e. Recommendations. Recommendations concerning the contents of this Order are welcomed and may be forwarded to DC I&L (LPS) via the appropriate chain of command.
- f. Advanced Manufacturing (AdvM) Data Management. AdvM implementation requires the user to develop, store, analyze, and transmit protected TDPs. This information is known as the "digital thread." Critical to the use and success of AdvM across the Service is a digital thread capable of providing the descriptive data utilized within the cataloging process. These data repositories are locations in which TDPs and associated information are stored.

(1) The Marine Corps' approved ground equipment repository is the DMDV. Access to data stored in DMDV exists in connected network environments as well as disconnected environments through locally stored data. The DMDV repository is configured with two user interfaces:

(a) A simplified user interface, which will be the interface for most users across the Marine Corps, DMDV App Center (formerly MCworx): <https://usmc-prd-thx.ptccloudservices.com/Thingworx>.

(b) A DMDV Advanced Engineering Suite for select users: <https://usmc-prd.ptccloudservices.com/Windchill>.

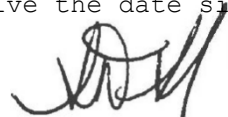
(c) Account request instructions for new users can be found within the Advanced Manufacturing Handbook for Ground Sustainment.

(d) DMDV Helpdesk email: [DMDVSupport@sabelsystems.com](mailto:DMDVSupport@sabelsystems.com).

(2) Though not applicable to this Order, the aviation equipment repository is located at the NAVAIR Joint Technical Data Integration (JTDI) repository website at <http://www.jtdi.mil>. The JTDI website is the only TDP repository authorized to host AdvM files for DON aviation components, to include job aids, tools, and jigs. Government sponsors can be reached for assistance at +1 (301) 342-3104 or [NAVAIR\\_AdvMfg\\_FCT@NAVY.MIL](mailto:NAVAIR_AdvMfg_FCT@NAVY.MIL).

## 6. Command and Signal

- a. Command. This Order is applicable to the Marine Corps Total Force.
- b. Signal. This Order is effective the date signed.



S. D. SKLENKA  
Deputy Commandant for  
Installations and Logistics

DISTRIBUTION: PCN 10255338000

References

- (a) Secretary of Defense Memorandum, Unleashing U.S. Military Drone Dominance, July 10, 2025
- (b) MCO 5100.29C Volume 2
- (c) Public Law 118-31, National Defense Authorization Act for Fiscal Year 2024, December 22, 2023
- (d) DFARS 252.227-7013
- (e) MCO 5000.27 Volume 3
- (f) UFC 3-301-01, Structural Engineering, April 11, 2023
- (g) DoDI 5000.97, Digital Engineering, December 21, 2023
- (h) Deputy Secretary of Defense Memorandum, Accelerating Advanced Manufacturing Capabilities for Joint and Coalition Forces, February 12, 2024
- (i) Office of the Secretary of War Memorandum, Reforming the Joint Requirements Process to Accelerate Fielding of Warfighting Capabilities, November 7, 2025
- (j) Assistant Secretary of the Navy for Research, Development, and Acquisition Memorandum, Department of the Navy Additive Manufacturing Intellectual Property Guidance, March 30, 2026
- (k) 10 U.S.C. § 4022
- (l) U.S Marine Corps Forces Reserve Campaign Plan
- (m) SECNAV M-5210.1 CH-1
- (n) MCO 5210.11F
- (o) 5 U.S.C. § 552a
- (p) SECNAVINST 5211.5F
- (q) MCO 4400.201 Volumes 1-17
- (r) DoDI 5010.44, Intellectual Property (IP) Acquisition and Licensing, October 16, 2019
- (s) 48 CFR Chapter 2
- (t) 10 U.S.C. §§ 3771-3775
- (u) MCO 3900.17
- (v) Tentative Manual for Expeditionary Advanced Base Operations
- (w) FAR 27.401
- (x) Functional Realignment of the Advanced Manufacturing Marine Corps Programming Code 800120 From Warfighting EPT to Sustainment EPT, February 10, 2026
- (y) DoDI 5000.92, Innovation and Technology to Sustain Materiel Readiness, May 7, 2021
- (z) MIL-STD-31000C, Department of Defense Standard Practice: Technical Data Packages, February 3, 2025
- (aa) MCO 5239.2B
- (ab) DoDI 8510.01, Risk Management Framework for DoD Systems, July 19, 2022
- (ac) Department of the Navy Advanced Manufacturing Strategy
- (ad) BOD 22-01, Reducing the Significant Risk of Known Exploited Vulnerabilities, November 3, 2021
- (ae) MCO 4000.57B
- (af) Executive Order 14307, Unleashing American Drone Dominance, June 11, 2025
- (ag) DoWI 5000.02 CH-2, Operation of the Adaptive Acquisition Framework, April 8, 2026
- (ah) DoDD 3000.03E CH-2, DoD Executive Agent for Non-Lethal Weapons (NLW), and NLW Policy, August 31, 2018
- (ai) SECNAVINST 5000.2G
- (aj) SECNAVINST 5710.23D
- (ak) MIL-HDBK-539A, Department of War Handbook: Digital Engineering and Modeling Practices, March 12, 2026

- (al) MIL-HDBK-115C, Department of Defense Handbook: US Army Reverse Engineering Handbook (Guidelines and Procedures), March 21, 2016
- (am) DoDI 5000.93 CH-1, Use of Additive Manufacturing in the DoD, July 6, 2021
- (an) Intellectual Property Guidebook for DoD Acquisition, April 30, 2025
- (ao) DoDM 5205.07, Special Access Program Security Manual, January 17, 2025
- (ap) MCO 5211.5
- (aq) MCO 5215.1K w/Admin CH-3
- (ar) MROC Decision Memorandum 05-2026, Program Objective Memorandum 2028 Service Alignment Briefs: Installations and Sustainment Enterprise Programming Teams, January 2, 2026

APPENDIX A

Glossary of Acronyms and Abbreviations

A&E	Ammunition and Explosives
AdvM	Advanced Manufacturing
AM	Additive Manufacturing
AMTC	Additive Manufacturing Training Center
APSR	Accountable Property System of Record
ASN (RD&A)	Assistant Secretary of the Navy for Research, Development and Acquisition
ATO	Authority to Operate
BPA	Blanket Purchase Agreement
C/A	Coarse/Acquisition
CAD	Computer-Aided Design
CAM	Computer-Aided Manufacturing
CNC	Computer Numerically Controlled
COTS	Commercial Off-The-Shelf
CSAM	Construction Scale Additive Manufacturing
c-sUAS	Counter-Small Unmanned Aircraft Systems
DaaS	Data-as-a-Service
DC CD&I	Deputy Commandant for Combat Development and Integration
DC I	Deputy Commandant for Information
DC I&L	Deputy Commandant for Installations and Logistics
DC M&RA	Deputy Commandant for Manpower and Reserve Affairs
DC P&R	Deputy Commandant for Programs and Resources
DC PP&O	Deputy Commandant for Plans, Policies and Operations
DC T&E	Deputy Commandant for Training and Education
DDIL	Degraded, Denied, Intermittent, or Limited
DDMS	Digital Data Management System
DFARS	Defense Federal Acquisition Regulation Supplement
DIB	Defense Industrial Base
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DMDV	Digital Manufacturing Data Vault
DMEA	Defense Microelectronics Activity
DMX	Digital Manufacturing Exchange
DON	Department of the Navy
DON/AA	Department of the Navy/Assistant for Administration
DoW	Department of War
DPP	Daylight Polymer Printing
DRMD	Directives and Records Management Division
EABO	Expeditionary Advanced Base Operations
ERDC-CERL	Engineering Research and Development Center - Construction Engineering Research Laboratory
FMF	Fleet Marine Force
FRC	Foam Raiding Craft
FSMAO	Field Supply and Maintenance Analysis Office
FSRM/BSM1	Facilities, Sustainment, Restoration, and Modernization/Business Support Measure 1
FYDP	Future Years Defense Program
GOTS	Government-Off-The-Shelf
GPN	Global Positioning Network
GPS	Global Positioning System
GRI	Global Resiliency Initiative

HQMC	Headquarters, United States Marine Corps
INP	Innovative Naval Prototype
IP	Intellectual Property
ISSM	Information Systems Security Manager
IT	Information Technology
ITPRAS	Information Technology Procurement Review and Approval System
JAMMEX	Joint Additive Manufacturing Model Exchange
JDMC	Joint Defense Manufacturing Council
JTDI	Joint Technical Data Integration
LogIT	Logistics Information Technology
LPS	Logistics Policy and Sustainment Branch
MAGTF	Marine Air-Ground Task Force
ManTech	Manufacturing Technology
MARCORLOGCOM	Marine Corps Logistics Command
MARCORSYSCOM	Marine Corps Systems Command
MARFOR	Marine Corps Forces
MARFORRES	Marine Corps Forces Reserve
MASS	Manufacturing Attributable Systems at Scale
MCPC	Marine Corps Program Code
MET	Mission Essential Task
MII	Manufacturing Innovation Institute
MILCON	Military Construction
MIU	Marine Innovation Unit
MOS	Military Occupational Specialty
NAMP	Naval Aviation Maintenance Program
NARA	National Archives and Records Administration
NAVAIR	Naval Air Systems Command
NAVMC	Navy and Marine Corps
NDS	National Defense Strategy
NSN	National Stock Number
NSS	National Security Strategy
NSWC	Naval Surface Warfare Center
OAI	Operation, Activity, and Investment
OEM	Original Equipment Manufacturer
OIB	Organic Industrial Base
ONR	Office of Naval Research
PBR	Presidential Budget Review
PEI	Principal End Item
PET	Prototyping, Experimentation, and Training
PICA	Primary Inventory Control Activity
PII	Personally Identifiable Information
PLA	Polylactic Acid
POM	Program Objective Memorandum
POR	Program of Record
RSF	Regional Sustainment Framework
S&T	Science and Technology
SAP	Special Access Program
sUAS	Small Unmanned Aircraft Systems
SUS EPT	Sustainment Enterprise Programming Team
TDP	Technical Data Package
TFSMS	Total Force Structure Management System
TLSP	Tailored Logistics Support Program
TTP	Tactic, Technique and Procedure

U.S.	United States
UAS	Unmanned Aircraft Systems
UFC	Unified Facilities Criteria
UGV	Unmanned Ground Vehicles
UMC	Unspecified Minor Construction
UNS	Universal Needs Statement
UNS(D)	Universal Needs Statement (Deliberate)
UNS(U)	Universal Needs Statement (Urgent)
USA	United States of America
USACE	United States Army Corps of Engineers
USMC	United States Marine Corps
USV	Unmanned Surface Vessels
UUV	Unmanned Underwater Vehicle
UxS	Unmanned Vehicles and Systems

APPENDIX B

Glossary of Terms and Definitions

1. "Access to a Network". Refers to the idea that the AdvM capabilities being pursued by the Service extend well beyond those for which the Service's organic capabilities. For example, current experimentation on big deck amphibs offer a stable platform which has readily available space required for metal Additive Manufacturing (AM). Additionally, entities (universities, national and federal laboratories and industry) can be leveraged to develop and validate process models which can be transferred to technology centers such as NSWC Carderock where they can be tested, demonstrated and applied. Another example is appropriately leveraging the latent manufacturing capabilities that already exist around the world through the private sector and/or host nation. These are all options in a "network" that extend beyond the Service's organic capabilities.
2. Additive Construction. Refers to a method of building in which structures or components are created by sequentially adding material, commonly layer by layer, through technologies such as 3D printing or other automated fabrication techniques. In the context of this Order, it applies specifically to those use cases which require compliance with Unified Facilities Criteria (UFC).
3. Additive Manufacturing (AM). A process of building an object layer by layer from 3D model data. This type of manufacturing is used interchangeably with "3D printing." It is a subset of the larger umbrella of AdvM and is used to create polymer, metal, ceramic, composite parts, and/or electronic elements (e.g., sensors, circuit cards, antennas, etc.).
4. Advanced Manufacturing (AdvM). Refers to the use of technologies to create existing products and the creation and/or assembly of new products. Includes AM, subtractive manufacturing, forging, casting, welding, and digital manufacturing. Though not a resident capability in the DoW, AdvM in the private sector includes bio-industrial manufacturing (e.g., using a burn victim's own cells to regrow human skin).
5. Authority to Operate (ATO). The official management decision given by a senior agency official to authorize operation of an information system and to explicitly accept the risk to agency operations (including mission, functions, image, or reputation), agency assets, or individuals, based on the implementation of an agreed upon set of security controls.
6. Advanced Manufacturing (AdvM) and Unmanned Vehicles and Systems (UxS) Battle Labs. Specialized units, organizations or facilities designed to test, evaluate, and develop AdvM technology, concepts, or tactics, techniques and procedures (TTPs).
7. Combined Force. A military force composed of units from two or more different nations.
8. Composites. Polymers blended with non-polymer fillers (e.g., carbon fiber).

9. Computer-Aided Design (CAD). The use of computer systems to create, modify, analyze, or optimize a design. CAD software allows designers to create 2D or 3D models of objects or systems. These models are essentially digital blueprints.
10. Computer-Aided Manufacturing (CAM). The software used to automate and control machine tools by translating CAD designs into instructions for machines. Examples include slicing software for 3D printers and software that is specific to computer numerically controlled (CNC) lathe/milling operations.
11. Computer Numerically Controlled (CNC). Any machine digitally controlled by a computer is by definition a "computer numerically controlled" machine. People often refer to CNC machines as milling machines; however, milling simply identifies the process that involves the cutting of the material with a rotating tool.
12. Data-as-a-Service (DaaS). In the context of AM, it enables users to securely send digital blueprints directly to any 3D printer worldwide thereby allowing for on-demand production of parts and reducing the need for centralized production facilities.
13. Defense Microelectronics Activity (DMEA). An organization operating under the office of the Secretary of War whose mission is to provide vital microelectronics engineering, technology, and support to ensure the operational readiness and superiority of U.S. defense systems.
14. Digital Engineering. A means of using and integrating digital models and the underlying data to support the development, test and evaluation, and sustainment of a system.
15. 'Digital' Global Positioning Network (GPN). In the context of this Order, it refers to the idea that use-cases exist in which forward postured operating stocks are not required to physically exist. The only physical requirement - assuming a digital twin exists and there is the ability to tap into a network of AdvM capabilities in close proximity - would, conceptually, be the raw material (e.g., polylactic acid (PLA) thermoplastic) that is required to manufacture the desired product. Example: if Class I regulations preclude the storage of water, a 'digital' GPN would still enable rapid manufacturing of water storage bags or bottles. Follow-on actions would require associated mobility to distribute those bags or bottles, as well as a source of water and purification capabilities, but the concept would, theoretically, enhance our ability to sustain the fight.
16. Digital Twin. A computerized representation (integrated set of models) that serves as the real-time digital counterpart of a physical object or process.
17. Expeditionary Advanced Base Operations (EABO). A form of expeditionary warfare that involves the employment of mobile, low-signature, operationally relevant, and relatively easy to maintain and sustain naval expeditionary forces from a series of austere, temporary locations ashore or inshore within a contested or potentially contested maritime area in order to conduct sea denial, support sea control, or enable fleet sustainment.

18. Expeditionary Construction. From a technical perspective, and in the context of this Order, it is a type of additive construction; however, the distinction made is that expeditionary construction pertains specifically to the use of additive construction in support of horizontal and/or vertical construction missions designed to enhance the mobility, counter-mobility, and/or the survivability of ground forces. Example equipment: compact (e.g., 12'x6'x8') and mobile 3D concrete printers that provide non-proprietary / locally sourced material options.
19. Form, Fit, and Function Data. Technical data that describes the required overall physical, functional, and performance characteristics (along with the qualification requirements, if applicable) of an item, component, or process to the extent necessary to permit identification of physically and functionally interchangeable item. See reference (d).
20. Ground-Based Ammunition. In the context of this Order, it refers to any munition or explosive device intended for delivery or deployment from ground-based platforms, systems, or personnel, including those that can be manufactured or assembled in expeditionary environments using AdvM methods. Though not an exhaustive list, this encompasses: munitions (e.g., mortars, grenades, and projectiles), improvised or modular munitions fabricated from 3D-printed or commercially available components, and droppable munitions constructed with plastic outer shells, embedded high-explosive fillers (e.g., C-4 or ammonium nitrate mixtures), fusing mechanisms, and rigged for aerial deployment via commercial or custom-built sUAS.
21. Ground Equipment. Includes all ground-based or ground-operated systems and capabilities to include, but not limited to: weapons, transportation, ammunition, medical, and command and control systems.
22. Ground Forces. In the context of this Order, it is not viewed through the lens of the Marine Air-Ground Task Force (MAGTF). It applies to all Marines and Sailors physically located on the ground.
23. Intellectual Property (IP). Refers to a bundle or group of legal rights to stop others from making, using, disseminating, displaying, modifying, selling, offering to sell information, data, technical data, computer software, patented inventions, or other classes of information protected under a variety of exclusive rights such as copyright, trademark, patent, or trade secret law.
24. Interchangeability. Refers to the ability of one part or component to be used in place of another without modification or requiring special procedures. Form, fit, and function is a specific set of criteria used to determine if parts are compatible and can be interchanged.
25. Inventory Control. Includes managing, cataloging, requirements determinations, procurement, distribution, overhaul, and disposal of materiel.
26. Joint Force. A force composed of significant elements, assigned or attached, of two or more Military Departments operating under a single joint force commander.
27. Limited Rights. See reference (d).

28. Manufacturing Capabilities. In the context of this Order, it is intended to be viewed through the following lens: manufacturing the capability to: conduct reconnaissance and fires (compliments of manufactured sUAS, 3D printed projectiles, etc.), provide organic close air support (compliments of manufactured loitering munitions), conduct mobility and force closure operations (compliments of manufactured unmanned surface vessels (USV)), provide back-up sources of power to charge radio batteries (compliments of manufactured small wind turbines), etc.

29. Program Objective Memorandum (POM). Built across a five-year Future Years Defense Program (FYDP) horizon that allocates resources to requirements spanning from two to six years beyond the current year and will ultimately become the Marine Corps' contribution to the Presidential Budget Review (PBR).

30. Prototyping. Preliminary model of something from which other forms are developed or copied.

31. Reverse Engineering. The process of replicating a design by physically examining and measuring an existing item to develop the technical data necessary to reproduce the item functionally and dimensionally. In other words, it is the process of extracting information about an item from the item itself. The use of limited rights or non-public commercial data to verify the technical data developed through reverse engineering is prohibited.

32. Subtractive Manufacturing. Making objects by removing material from a bulk solid to leave a desired shape (using CNC laser cutters, vinyl cutters, waterjet cutters, plasma cutters, electric discharge machines, milling machines, lathe machines, and drill presses).

33. Sustainment. Refers to the broad range of activities required to maintain the readiness and operational capability of forces and of fielded systems.

34. Systems Approach. A holistic and integrated way of solving problems by looking at interconnected components – people, equipment, processes, and environments – and understanding how their interactions affect solution sets.

35. Technical Data. Recorded information, regardless of the form or method of the recording, of a scientific or technical nature (including computer software documentation). The term does not include computer software or data financial, administrative, cost or pricing, or management information, or information incidental to contract administration. See reference (d).

36. Technical Data Package (TDP). The authoritative technical definition of an item. It supports the acquisition, production, inspection, engineering, and logistics support of the item. A product level TDP is normally required to produce an item or component that is essentially identical to the original. There are three levels of a TDP and not all TDPs delivered as part of a contract have the level of detail necessary for AdvM. See MIL-STD-31000C.

37. Traceability. Provides the ability to trace AdvM manufactured parts back to the installed end item as data is connected to the service request and serial number of the item.

38. Universal Needs Statement (Deliberate) (UNS(D)). A Deliberate UNS is used by Deputy Commandants, Commanders of Marine Forces, and/or DC T&E to identify Capability Needs and is primarily intended as an input to the Capabilities Planning Process owned by DC CD&I. If validated, a Deliberate UNS may lead to new investment in a subsequent POM.

39. Universal Needs Statement (Urgent) (UNS(U)). An Urgent UNS is an exceptional request from a combatant command-level Marine component commander for an additional warfighting capability that is critically needed by operating forces conducting combat or specific contingency operations. Failure to deliver the capability identified by the Urgent UNS risks loss of life or critical mission failure. When validated by DC CD&I, an Urgent UNS leads to the delivery of an interim solution within two years and will then be considered as a potential enduring Capability Need in the Capabilities Planning Process.

40. Unmanned Vehicles and Systems (UxS). The exact definition varies but this Order views them through the following lens: Group 1 and 2 sUAS, unmanned ground vehicles (UGV), USV, and unmanned underwater vehicles (UUVs) which are underwater (submersible) or semi-submersible.

41. Welding. A manufacturing process used to join metals or thermoplastics by causing fusion, often utilizing heat, pressure, or filler material. In expeditionary environments, welding is a critical capability enabling rapid repair and fabrication of mission essential assets.