

# Getting UAS Integration Back on Track

**We need to be effective and efficient  
in our UAS integration and employment**

by Maj Jonathan Wagner, Capt Shelby Ochs & Joe Hackett

**T**he Marine Corps finds itself with unprecedented opportunity to leverage innovation in unmanned aerial system (UAS) technology. Unmanned systems organic to the GCE, ACE, and the LCE have historically provided a wide array of competitive advantages across all of the warfighting functions. The explosive growth in the technological development and employment of small UAS (SUAS) across the globe for both commercial and military applications highlights the burgeoning value of unmanned systems. The unfortunate reality is that the Marine Corps is not postured to ensure UAS resources are effectively and efficiently employed and integrated across the MAGTF and with the joint force. To leverage the ever-evolving advancements within the UAS eco-system, the Service must perform five tasks:

- Accept the operational and physical seams that exists between UAS (and SUAS in particular) and manned aircraft.
- Formally codify an effective Service Advocacy program for UAS.
- Continue to professionalize and “normalize” the community of UAS operators and subject matter experts through structure, training, and MOS development.
- Revamp our approach to requirements development, resource allocation, and procurement relative to UAS.
- Direct stakeholder Deputy Commandants to allocate personnel struc-

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**The Marine Corps needs to consider UAS modernization. (Photo by Cpl Melanye Martinez.)**

ture primarily focused on the development, procurement, sustainment, integration, and employment of UAS. If we continue to ignore these crucial next steps, our Service will remain ineffective at UAS modernization and

slip into a competitive disadvantage relative to our enemies.

In 2006, The Assistant Secretary of The Navy for Research, Development, and Acquisition (ASN RD&A) assigned Program Executive Office-Un-

manned Weapons (PEO-U&W) as the Department of Navy (DON) lead for acquisition of Navy and Marine Corps UAS.<sup>1</sup> Subsequently, all UAS program management was assigned to organizations within Naval aviation (NAVAIR). Since 2006, UAS technology advancement and proliferation revolutionized the way we receive, process, and act on information. Unfortunately, traditional stove-piped program management techniques developed in the Cold War are still largely in place at NAVAIR. Consequently, UAS policy developed to mirror manned aircraft oversight. Today's UAS are smaller, cheaper, more capable, and easier to employ than the systems originally addressed and envisioned in the 2006 memo. While current law and DOD guidance<sup>2</sup> mandate that UAS employment meet regulations established by the Federal Aviation Administration (FAA), it is important to ensure that requirements regulating UAS employment in national airspace do not serve as the sole governance when developing warfighting capability and concepts of employment for combat operations. User-friendly policies are required to ensure we continue to empower the MAGTF of the future. The following recommendations are provided to help further inform the discussion on the future of Marine UAS.

*Recommendation 1.* UAS are unique. Speed and technological advancement have over-stepped policy making. The Service must catch up, but with a requirement to ensure flexibility which supports full and effective integration. Nowhere is this policy disconnect more keenly felt than in the procurement, fielding, sustainment, and operation of SUAS. The top requirement for the effective integration of UAS technology is to identify and accept the disparity between employment of Group 1 and 2 (less than 55 pounds) SUAS and manned aircraft. The intent is not to excuse SUAS from laws and directives provided by the DOD, DON, and FAA, but rather to ensure Service policies are properly vetted and shaped by the operating community—which in the case of SUAS is primarily the GCE and LCE. As an example, NAVAIR currently requires organizations employing

SUAS to establish a Designated Approving Authority (DAA).<sup>3</sup> The DAA must be a general officer or member of the Senior Executive Service, and is tasked with providing oversight of accountability, training, maintenance, and operations. The requirement for a DAA is modeled after the mandate for an aircraft controlling custodian to carry out the same responsibilities for manned aircraft operations. While it is certainly understandable that a CH-53K require general officer oversight of the platform's flight clearance, changes of assigned unit, and maintenance procedures, it is not reasonable to affix those same constraints to SUAS. Case in point, is it practical for the service to require general officer concurrence to employ, maintain, or share a quadcopter between infantry battalions?

*Recommendation 2.* Formally codify an effective UAS advocacy program. Per quantities addressed in the 2018 Marine Aviation Plan, and with the Commandant's recent quads for squads initiative, the GCE is now on pace to own more UAS than the ACE. Yet, *MCO 5311.6*, which identifies advocate and proponent assignments, currently articulates aviation as the sole Service advocate for all aviation operations.<sup>4</sup> It does not address the recent deferment of Aviation Advocacy for Unmanned Logistics Systems-Air (ULS-A) to the Deputy Commandant, Installations and Logistics.<sup>5</sup> The existing order also fails to accurately reflect GCE and LCE stakeholders as assigned proponents.

The Marine Corps currently lacks a standardized approach to training SUAS operators, a Service policy to ensure maintenance and accountability of systems, an effective SUAS concept of employment, and a Marine Corps Order which concisely articulates the various administrative requirements directed by NAVAIR, the DON, the JCS, the DOD, and FAA. The Service must expand upon guidance such as the aforementioned ULS-A Advocacy memo and ensure *MCO 5311.6* appropriately recognizes the responsibilities of all UAS users. While *CNAF 3710.9, Guidance for the Operation of Department of Navy Group 1 and 2 UAS*, makes modest efforts to carve out SUAS, it is

still too vague to be actionable. Failure to establish and manage an effective advocacy program inhibits the ability of interested parties to offer feedback, assist in the development of program requirements, and aide in the implementation of oversight.

Additionally, the *UAS Training and Readiness Manual* currently reads as a NAVAIR document. It ties operator readiness to numbers of sorties, establishes crew sizes for specific platforms, defines currency as sorties within a given period of time, as well as highlights a maximum number of sorties per day.<sup>6</sup> The document clearly mirrors the training and readiness manual of a manned aircraft and is not written to support many of the systems which organically reside within the GCE and LCE. Some may not see an issue with these concerns, but it is important to highlight that UAS policies must allow for rapidly evolving capability and not become tied to specific platforms with short useful shelf lives. Readiness must not be calculated in sorties per type/model/series, but rather through proficiency in completing a task when given a condition and standard.

*Recommendation 3.* Professionalize and “normalize” the UAS community. This is a broad topic, worthy of its own series of articles, and spans the gamut from recruiting and MOS assignment to training syllabi and pipelines, school houses, and finally operational force manning and structure. It suffices to say the Marine Corps' approach to manning and operating UAS is ad hoc at best. The SUAS operator community consists of collateral duty operators pulled from the GCE and trained by one of three training and logistics support activities. SUAS courses and curriculum are not currently managed or funded by Training and Education Command nor are SUAS operators tracked by MOS. At the very least, the Marine Corps must seriously consider an MOS for SUAS operators, with all the associated support and infrastructure that implies. For larger UAS, MOSs exist within the VMU community, but the VMU community itself is in disarray and has been a target for manpower poaching in past force structure reviews.



**An RQ-115 Raven monitor.** (Photo by Cpl Melanye Martinez.)

Effective integration and employment of larger UAS requires an acceptance within the ACE of unmanned aviators as peers in addition to a restructuring of squadron manning, training, and support that mirrors other manned aviation organizations. Simply put, when UAS are employed in national airspace, they must adhere to FAA regulations—just like manned aircraft. The pilots are merely in a different location.

*Recommendation 4.* Combat development process. The Marine Corps needs to revamp our approach to requirements development, resource allocation, and procurement relative to UAS in order to best take advantage of rapid technology advancement. USSOCOM calls their process “combat development.” Under this process, organizations that research and develop, provide resourcing, develop requirements, and manage those programs fall under one unified command. The current Navy process nests these critical and related functions under multiple commands that are not similarly organized, do not always communicate effectively or transparently, and possess the ability to end up in competition with each other. Unifying these commands organizationally under the Deputy Commandant for Combat Development and Integration will go a long way in streamlining this process. Additionally, the Service must

re-examine its acquisition policy and develop programmatic processes that are more flexible, agile, and efficient.

*Recommendation 5.* Ensure that personnel structure exists, within the offices of stakeholder Deputy Commandants, to focus resources on leveraging the advantages of UAS. These Deputy Commandants should ensure that personnel are oriented on the integration of UAS and informing program requirements. Because of the nuances of Federal regulations, relying on UAS integration as a collateral duty will not suffice. UAS employment is tied to more than airworthiness certificates. It also possesses cyber vulnerability concerns,<sup>7</sup> impacts installations and operations, requires dynamic range, and airspace control—this is to say nothing of the additional oversight requirements which could be specific to payload capability.

Furthermore, improvements in UAS endurance and capability are being addressed by industry, academia, DOD organizations—such as Defense Innovation Unit, Defense Advanced Research Projects Agency, the Office of Naval Research, and the Marine Corps Warfighting Lab—and even local additive manufacturing initiatives. Having personnel who can focus on UAS integration, and leverage rapid acquisitions, will ensure that HQMC organizations take advantage of opportunities that

routinely outpace the traditional acquisitions process.

There are initiatives underway to address many of these issues, but without strategic guidance, coordination, and support from senior leaders, most will be in vain. Too often, the Service will simply default to the application of existing manned aircraft policy. In order to break from this tradition, and effectively capitalize on the advancements that are being made within the GCE, ACE, and LCE, the Service must take action in the five recommended areas for improvement previously described. Without a change to the method by which we develop and assimilate innovation, modernization efforts will continue to be dependent upon personalities, rather than a professionalized process.

#### Notes

1. Assistance Secretary of the Navy, “Acquisition Management Practices for Marine Corps Unmanned Aircraft System Programs,” (Washington, DC: October 2006).
2. Secretary of Defense Memo, “Guidance for the Domestic Use of Unmanned Aircraft Systems in U.S. National Airspace,” (Washington, DC: August 2018).
3. Commander Naval Air Forces, *COMNAVAIRFOR 3710.9, Guidance for the Operation of Department of Navy Group 1 and 2 Unmanned Aircraft Systems*, (Patuxent River, MD; November 2017).
4. Headquarters Marine Corps, *MCO 5311.6, Advocate and Proponent Assignments and Responsibilities*, (Washington, DC: December 2013).
5. DC, I&L and DC, Aviation Memo, “Advocacy for Unmanned Logistics Systems-Air,” (Washington, DC: December 2018).
6. Headquarters Marine Corps, *NAVMC 3500.107A, Group 1 Unmanned Aircraft Systems Training and Readiness Manual*, (Washington, DC: March 2014).
7. Under Secretary of Defense, Air and Space Policy, “Commercial Off-The-Shelf UAS Implementation Guidance,” (Washington, DC: June 2018).

