

Small UAS

Integration into the Marine Corps' Formal Learning Centers

by Capt Daniel E. Callaway

The Marine Corps must integrate unmanned technologies into its Formal Learning Centers (FLCs) to train, equip, and shape the emerging generations of Marines into leaders who can “reach effective military decisions and implement effective military actions faster than an adversary in any conflict setting on any scale.”¹ The specific implementation of this integration for most FLCs should start with small unmanned aerial systems (SUAS) because of their (relatively) low cost, widespread purchase sources, simple interfaces, and ubiquity within modern battlefields.

Integration into FLCs

FLCs train the future leaders of the Marine Corps. The Marines attending these learning centers are taught the Marine Corps' doctrine and best practices relating to diverse fields of study. Each of these fields will benefit from increased time spent developing and refining skillsets that enable accomplishment of human-critical tasks while assigning an appropriate portion of non-critical tasks to automated systems. The partial or complete automation of non-critical tasks, through the incorporation of unmanned systems, will free additional resources that can be utilized to emphasize human-critical tasks.

These decisions of whether or when to rely on unmanned systems are not always intuitive; instead, they require organizational-level standardization of best practices to ensure that Marines are not “reinventing the wheel,” thereby squandering time and initiative. By including unmanned technology and associated training into FLCs, the Marine Corps can guide its Marines' involvement in this area. R.K. Ackerman refers to as, “burgeoning threat,” significantly enhancing the investment it is already

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making with its future leaders, at relatively minimal additional cost.²

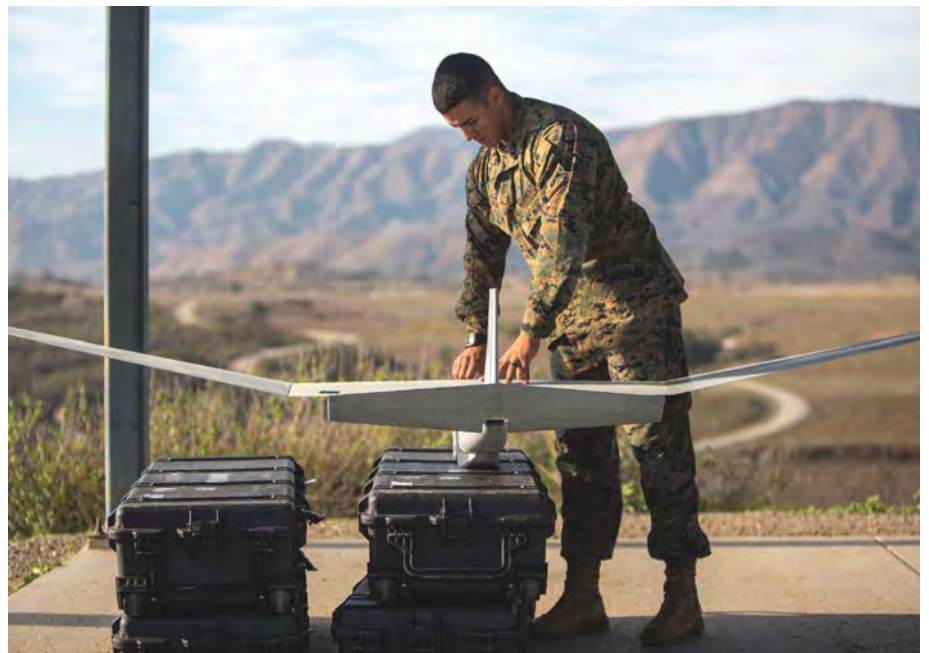
Following the inclusion of unmanned systems into the FLCs, the Marine Corps must capture and capitalize on the insights of participating Marines as they interact with this technology to fuel continued innovation and development of MOS-specific practices that will incidentally be transmitted to Operating Forces units—which will then develop tactics, techniques, and procedures (TTPs) for their unique deployment environments.

FLCs to Focus on SUAS

FLCs should start their integration

of unmanned technologies with a focus on SUAS. These systems are low cost, accessible through established channels, easily procured with appropriate funding sources, and already incorporated into Marine Corps processes through documents such as *MCBUL 3710*.³

Additionally, of all the unmanned technologies, SUAS are most likely to be present on the modern battlefield. The Nation's adversaries are currently utilizing and will likely continue to use SUAS to target, track, and surveil friendly forces in combat. This fact is emphasized by the Marine Corps' LtGen Vincent R. Stewart, former Director of the Defense Intelligence Agency, in his



Begin with SUAS. (Photo by Cpl Emmanuel Nocochea.)

highlighting of “ISIS use of unmanned aerial systems (drones) for surveillance and delivery of explosives.”⁴

Given the various levels of leadership trained at FLCs, the current environments throughout which Marines are employed, and the availability of various types and applications of SUAS technologies, Marines should be given increased exposure to this technology with the FLCs being among the most appropriate venues to provide this exposure.

Considering SUAS Implementation for FLCs

Sufficiently justifying the claim that FLCs should implement SUAS requires considering the benefits each FLC will gain, the cost associated with each derived benefit, and a review that covers the major aspects involved in implementation. These points will be evaluated by looking at the three major focus areas that are required to operate SUAS: equipment acquisition, personnel and training management, and ranges, airspace, and access coordination and deconfliction. Individually, following each of these categories, an examination of likely objections will be conducted—leading to a starting point for planning within this implementation model.

Equipment. FLCs must quickly learn general SUAS principles of employment and defense from the range of DOD organizations focused on this field while also considering how SUAS devices could interact with their specific subject-matter to determine their unique system requirements before considering the optimal procurement path. This can be accomplished in a low cost manner with minimal consequences to current mission requirements.

One might argue that current budgets are too small with all of the requirements already placed on units, and incorporating SUAS will over-tax small commands’ unit funds. The counter-argument to this is that the currently available SUAS are relatively low cost. In fact, according to the Homeland Defense Information Analysis Center, there are aerial surveillance systems available that are less than one-hundred dollars.⁵ Simple systems could be all that are re-

quired to incorporate SUAS into various commands and, because of the low cost, replacement costs are likewise low. There is distinct need within this effort to hone in on those capabilities that are actually required and to purchase only the necessary technology that can accomplish those tasks—without all of the additional capabilities that lead to ballooning costs.

These points focused on access to equipment are not lost on the defense community, which is concerned as it recognizes that “forces unfriendly to the United States can easily acquire these types of flying vehicles.”⁶ FLCs should explore simple ways of acquiring SUAS

not overly complicated. Many organizations already expend significant resources in addressing this area. The gap is in comprehensive exposure and training to address the ubiquity of SUAS in the operating environments throughout which the Marine Corps will continue to find itself.

Examples that highlight this proliferation of SUAS, showing the need to include a level of SUAS training into every avenue, include Ackerman’s recent article, “Unmanned Systems the New Weapon for Terrorists,” which pointed to the widespread effort across the DOD to counter enemy unmanned aerial vehicles (UAVs); the innovative

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that meet the particular mission needs while also focusing on required personnel and training.

Personnel and training. If FLCs are directed to adopt SUAS implementation according to this recommendation, there will be a significant personnel and training shortfall that could be attained through establishing formal SUAS support from current Training and Logistics Support Agencies (TALSA) to Training Command (TCOM); providing TCOM an exclusive TALSA branch; or modify Marine Corps policy to allow FLC battalion-level units to train and certify SUAS operators through uniformed SUAS evaluators.

It can be argued that there are already too many requirements that consume personnel resources to add yet another requirement. However, utilizing either of the TALSA options or the organic production option will be a low impact way of addressing this critical area. Additionally, considering the continually morphing threat posed by SUAS, investment of precious resources in this area is warranted. Furthermore, the movement toward implementation is

approach adversaries are taking, focusing on research and development; and Joint Improvised-Threat Defeat Organization’s leveraging of “digital natives” to “provide disruptive ideas for problem solving” in this field.⁷

The Marine Corps has generations of its own digital natives within each FLC. The most recent generations of Marines grew up with a level of technology saturation in their daily lives that is unrivaled by previous generations. Disruptive ideas for employing and countering SUAS in each FLC’s focus area may come from uniformed members within each FLC, but this is not likely unless they receive appropriate training and exposure. However, effectively implementing this training and exposure requires a new perspective on ranges, airspace and access.

Ranges, airspace, and access. Enemy forces are not limited in where or when they can fly SUAS. SUAS manufacturers can certainly program software restrictions to avoid areas designated as sensitive; however, these restrictions do not address “eye in the sky” systems that are essentially aerial cameras, but that



SUAS are likely to be encountered on future battlefields and we should be prepared to counter their effective employment by enemy forces. (Photo by LCpl Jack Howell.)

unfriendly forces could retrofit, “giving the aircraft the ability to deliver weaponized explosives or hazardous materials.”⁸

HDIAC shows an example of this ease of access, reporting that “a small drone crashed into a tree on the South Lawn of the White House.”⁹ It further states, “If the White House radar system could not detect this small device, it is unlikely military radar systems protecting military installations would detect a weaponized drone.”¹⁰ With this lack of an ability to deny unwanted SUAS from flying in sensitive areas (e.g., the White House), why overly restrict where Marines can fly for exposure and training?

Marines are currently severely limited in when and where they can fly SUAS, limiting their exposure to the technology from both a friendly and red cell perspective. If FLCs are going to embrace SUAS technology, thereby modernizing their training environments and deriving benefits from the unique vantages of digital natives present within their student and staff populations, they must have expanded real estate (airspace, ranges, and spectrums) within which they can explore and develop throughout this realm.

Conclusion

FLCs must quickly and systemati-

cally integrate SUAS technologies into their training environments in order to prepare the emerging generations of Marines for global employment in diverse and complex battlefields with SUAS as an integral part. This is how FLCs can set their Marines up for success. The point of departure for this initiative is the development of a concept of friendly employment and red cell interaction based on a consideration of modern threats within each FLC community.

Notes

1. Headquarters Marine Corps, *MCDP 6, Command and Control*, (Washington, DC: October 1996).
2. Robert Ackerman, “Unmanned Systems the New Weapons for Terrorists,” *AFCEA*, (Online: July 2017).
3. Headquarters Marine Corps, *MCBUL 3710, Interim Service Policy for Small Unmanned Aerial Systems*, (Washington, DC: April 2019).
4. LtGen Vincent Steward, USMC, “Statement for the Record: World Wide Threat Assessment,” *Defense Intelligence Agency*, (Online: May 2017).
5. Homeland Defense Information Analysis Center (HDIAC), “Flying IEDs: The Next

Evolution in Warfare?,” *Armed With Science*, (Online: October 2015).

6. Ibid.

7. “Unmanned Systems the New Weapons for Terrorist.”

8. “Flying IEDs: The Next Evolution in Warfare?”

9. Ibid.

10. Ibid.

>Author’s Note: Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the United States Marine Corps or the United States Government. This article was written in November 2017, and while the author believes the expressed views are still relevant, several recent and significant developments in policy, permissions, and staffing have addressed some of the author’s concerns. This article is submitted because of the enduring need for a deliberate look at the following areas:

- *Fielding plan for new SUAS technologies. New SUAS technologies should ideally be developed in conjunction with experimental units for testing, then be fielded to FLCs for a demanding evaluation at the hands of initial-level to advanced students in MOS-specific contexts, followed by combat-ready employment within the Operating Forces. This order will aid in ensuring that the precious lives and time of Marines in harm’s way are not risked with technology that was not rigorously assessed.*
- *Assignment of appropriate tasks to SUAS. A task list for SUAS should be developed following the creation of a solidified concept of employment (COE). If Operating Forces Marines are assigned SUAS without a solidified COE, they will find uses for the systems, but they will then be doing experimental work that should have been accomplished at a previous point. Lacking a COE, Marines will appear to be using SUAS primarily for fear of missing out on this technological trend, and not in response to a defined battlefield requirement.*

