

The Way Ahead

How MCWL informs development of the future force
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The future operating environment (FOE) is dynamic and unpredictable; nevertheless, the Marine Corps must build a future force to operate and win in the FOE. Through the determination of event horizons, the analysis of likely and potential FOE and the key drivers of change, the Marine Corps Warfighting Laboratory/Futures Directorate (MCWL/FD) continues to develop and examine threat informed, future oriented Service concepts. The purpose of these concepts is to put a figurative future force “stake-in-the-sand” against which to conduct explorative experimentation, or learning, which generates evidence-based knowledge to inform and support contestability of the Marine Corps force development process.

A Threat Informed, Concept-Led Learning Approach

The FOE is dynamic and uncertain; however, strategic guidance for future force development remains consistent and clear: the Marine Corps will need to fight and win against advanced adversaries across increasingly contested domains (air, sea, land, space, cyberspace, and cognitive). MCWL/FD knowledge outputs must be future threat informed. They must also address identified capability gaps derived from an analysis of likely FOE and current operating/joint/naval force demands. Importantly, MCWL/FD knowledge outputs must be contestable. This means there must be a base of defensible analytic evidence to justify and support MCWL/FD future force recommendations. To enable this, MCWL/FD generated a series of prioritized learning demands to drive the future force development process.

To explore these learning demands, MCWL/FD will employ an explorative approach that uses a myriad of learning



Live-force experimentation will be part of Service-level exercises. (Photo by SSgt Joshua Johnson.)

means. First, concepts will be developed and evolved using wargames, modeling and simulation. This will inform concept-led, capability-based explorative experimentation, which involves limited technical assessments, live-force experimentation, and extended user evaluations. The intent is to generate robust data sets that address the prioritized learning demands and support contestability of MCWL/FD future force recommendations. The following functional experimentation approach will be used in 2019:

Wargames. MCWL/FD will conduct both deliberate and iterative wargaming to develop and assess Service concepts throughout fiscal year 2019 (FY19). The deliberate approach includes an eight game set incorporating an annual series of Service-level wargames: Marine Corps’ Title 10 Wargame (EXPEDITIONARY WARRIOR), Naval Service Game, MAGTF WARRIOR, and the Program Objective Memorandum

Wargame. The iterative approach will focus on exploring deep future strategies that are set beyond the 2030 timeframe. Promising capabilities such as artificial intelligence (AI), other emerging technologies, and robotics will be examined. In support of this approach, MCWL/FD is strengthening its partnership with the Marine Corps University to leverage its student body to help promote innovation, education, and leverage expertise in evaluating future problem sets.

Science and technology development. The Marine Corps Robotics and Autonomy Strategy (MCRAS) was released in late 2018. The MCRAS describes the following objectives: increase situational awareness, lighten the Marines’ cognitive and physical burden, improve sustainment, facilitate movement and maneuver, and protect the force.

- Increase situational awareness. Complex terrain and enemy countermeasures limit our Marines’ ability to sense and fight at the battalion

level and below. Advancements in RAS allow for persistent surveillance and reconnaissance over wide areas, often going where manned systems cannot, thereby increasing standoff distances, survivability, and reaction time for commanders.

- Lighten the Marines' physical and cognitive workloads. RAS will increase a Marine's speed of decision and speed of action on the future battlefield. RAS will facilitate mission command by collecting, organizing, and prioritizing data to facilitate decision making as well as improving tactical mobility. This will include new modular RAS platforms that provide greater lethality, while reducing cyber, electronic, and physical signatures.

- Sustain the force with increased distribution, throughput, and efficiency. Logistics distribution is resource intensive. Air and ground unmanned systems and autonomy-based capabilities will enhance logistics at every stage of future supply chains. RAS will move materiel on demand to the most urgent points of need and provide increased distribution options for Marine Corps logisticians of the future.

- Facilitate movement and maneuver. Adversary investment in anti-access/area denial capabilities enables them to engage Marine Corps forces earlier and at greater distances and threaten movement and maneuver across extended avenues of advance. Future Marines will employ RAS to create temporary windows of superiority across multiple domains to seize, retain, and exploit the initiative and to achieve military objectives.

- Protect the force. The congested and contested future operational environment increases Marine's exposure to hazardous situations. RAS technologies will enhance survivability by providing greater standoff distance from enemy formations, rockets, artillery, and mortars as well as placing less Marines at risk during convoy operations. In addition to the release of the MCRAS, MCWL/FD is developing the Marine Corps AI strategy, which will speed up and improve decision making in the following areas: identifying strategic indications and warnings,

advancing narratives and countering adversarial propaganda, supporting operational/campaign-level decision making, enabling leaders to employ manned-unmanned formations, and enhancing mission execution through big data analysis.

Live-force experimentation: MCWL/FD will conduct explorative live-force experimentation to stress, test, and assess capabilities envisioned in future concepts, and the MCRAS and AI strategies. This will be conducted as a part of SEA DRAGON—The Marine Corps Experimentation Plan. SEA DRAGON will continue to prioritize Service-level “fight tonight” and future force experimentation objectives. The plan will align those objectives to Service-level exercises and events, MCWL/FD experiments for explorative assessment, and the development of capability recommendations. These objectives will remain aligned to the Marine Corps modernization priorities and address MCWL/FD prioritized learning demands.

The Fleet Information Management System will be used to register, track, and consolidate reporting on specific naval experiments and experimental capabilities.

During 2019, MCWL/FD will lead a concerted Service live-force experimentation effort as part of Exercise PACIFIC BLITZ focused on operations in the information environment and expeditionary advanced base operations. MCWL/FD will also conduct a dense urban live-force experiment in 2019, with objectives nested to the Secretary of Defense's Close Combat Lethality Task Force. The focus of this experiment is to assess a robotic and autonomous systems enabled GCE's ability to sense, decide, and act against an adaptive threat force in a likely future dense urban environment.

Knowledge Transition

The MCWL/FD knowledge outputs from this explorative learning approach will be transitioned to Capabilities Development Directorate to support the capability-based assessment process. This occurs through the Future Force Assessment, an annual document that

captures all MCWL/FD knowledge output recommendations, the Quarterly Futures Review (a General Officer board), and strategic engagement events. This is supported by a strong future force strategic communications plan focused on the legislative branch, Office of the Secretary of Defense, adjacent organizations (Marine Corps Systems Command, and Program Executive Office Land Systems), Marine Corps advocates/proponents, the Operating Forces, and sister Service/Special Operations Command force developers, support for strategic analysis, and the DOD planning analytic community. Through this MCWL/FD positively and dramatically impacts every MAGTF element, at every echelon, across all warfighting functions.

FY19 knowledge transition has already commenced. In the first quarter of FY19, MCWL/FD conducted the Program Objective Memorandum 21 Wargame. The outputs of which have directly informed future force investment decisions that will impact the Service's warfighting capabilities inside the current Future Year Defense Program.

Conclusion

A relevant and credible Marine Corps is a strategic imperative for a dynamic and uncertain world of the future. MCWL/FD is responsible for delivering contestable future force design and capability recommendations that inform and support the realization of such a force. This is done through an analysis of the FOE, the development of threat informed future concepts, the prioritization of learning demands, and the conduct of explorative functional experimentation that generates an evidence base of contestable data.

