WARFIGHTING

As good as we are today, we will need to be even better tomorrow to maintain our warfighting overmatch. We will achieve this through the strength of our innovation, ingenuity, and willingness to continually adapt to and initiate changes in the operating environment to affect the behavior of real-world pacing threats. This will require a break from the past practice of capability-based force development. We will succeed by continually challenging the status quo and asking ourselves – is there a way to cause a better outcome? Will III MEF be able to create a mutually contested space in the South or East China Seas if directed to do so by U.S. INDOPACOM? If not, what changes are required to enable the desired outcomes? Will we create the modern, lethal naval expeditionary force we seek by continuing to maintain separate and distinct capability development and POM development processes from the Navy? If not, is there a better way to cause the desired outcomes?

The Marine Corps has been and remains the Nation's premier naval expeditionary force-in-readiness. While we stand by to perform "such other duties as the President may direct," foreign humanitarian assistance, disaster relief, and noncombatant evacuations do not define us – they are not our identity. Rather, they are the day-to-day consequence of being the force-in-readiness. As the force-in-readiness, we are not an across-the-ROMO force; but rather, a force that ensures the prevention of major conflict and deters the escalation of conflict within the ROMO.

Command and Control

We must reach and execute effective military decisions faster than our adversaries in any conflict setting, on any scale. Our command and control processes and systems must reflect our maneuver warfare philosophy. Decision making that focuses on speed and creating tempo, mission command that focuses on low level initiative, simple planning processes and orders writing techniques that are measured by the quality of the intent, all require a command and control system that is flexible, adaptable, and resilient. We will always focus on people over systems in the command and control process per FMFM1. Decisions are what the commander does; systems exist only to support the commander's needs. We must also recognize that modern operations, particularly distributed operations, require connectivity and access for success. We must create systems that are resilient and match our warfighting approach in order to protect our ability to make decisions that generate tempo.

WARFIGHTING CONCEPTS AND FORCE DEVELOPMENT

Naval Operating Concepts

As a naval service, the Marine Corps contributes substantively in the development of the naval operational concepts that will guide how the joint force conducts expeditionary operations in the future. The character of war is increasingly dynamic, and the rapid advance of new technologies by both friend and foe has accelerated the rate of change, ensuring that the character of war in the future will be much different than that of the recent past. Our most challenging adversaries have initiated a new paradigm of warfare, based on the development and fielding of long-range precision weapons, as well as information-related capabilities. The greatly extended range, quantity, and accuracy of these observed fires impose new vulnerabilities on the joint force, to include the Navy and Marine Corps, and necessitate significant changes to the concepts and capabilities by which Marines will conduct expeditionary operations in the immediate future.

The 2016 *Marine Corps Operating Concept* (MOC) predates the current set of national strategy and guidance documents, but it was prescient in many ways. It directed partnering with the Navy to develop two concepts, *Littoral Operations in a Contested Environment* (LOCE) and *Expeditionary Advanced Base Operations* (EABO) that nest exceptionally well with the current strategic guidance. It is time to move beyond the MOC itself, however, and partner with the Navy to complement LOCE and EABO with classified, threat-specific operating concepts that describe how naval forces will conduct the range of missions articulated in our strategic guidance. The MOC will therefore be replaced by either a Marine Corps or unified capstone naval concept as determined in consultation with the Chief of Naval Operations. With respect to subordinate concepts, at a minimum I see the need for a concept that describes how naval forces compete and, if necessary, confront adversaries below the threshold of conflict, as well as a concept for how we will conduct sea-based forward presence and crisis response.

Composite Warfare

As an organization statutorily designated for service with the Fleet during the prosecution of a naval campaign, the Marine Corps must be able to quickly and effectively integrate into the naval force. The Navy's method for decentralized command and control at the tactical-level is composite warfare (CW); therefore, the Marine Corps must prepare to operate within this doctrinal construct. CW provides flexible command and control arrangements that can respond to multiple threats across various domains and mission areas without overwhelming the decision capacity of a single commander or battle staff. Through this approach to all-domain warfare, CW empowers subordinates to execute decentralized tactical operations – independently or integrated into a larger Naval or Joint Force – through mission command and flexible supporting relationships responsive to ever-changing tactical situations.

Marine Corps integration into the Fleet via composite warfare will be a prerequisite to the successful execution of amphibious operations: Marines cannot be passive passengers en route to the amphibious objective area. As long-range precision stand-off weapons improve and diffuse along the world's littorals, Marines must contribute to the fight alongside our Navy shipmates from the moment we embark. Once ashore, Marine Forces operating within CW will increase the Fleet's lethality and resiliency and will contribute to all domain access, deterrence, sea control, and power projection.

The Marine Corps will add composite warfare to our practical application of naval tactical combat power to complement our understanding of maneuver warfare outlined in FMFM-1 *Warfighting*. The Marine Corps will undergo an aggressive naval education program – ranging from the conceptual understanding naval theory and history down to tactical-level schools and courses – to enable our commanders and staffs across the Fleet Marine Force to quickly integrate in to naval forces and provide critical capabilities both afloat and ashore. Conversely, the Marine Corps must advance the education of navy officers in our capabilities and organizations; without this reciprocity, our efforts will not be as effective as the future security environment requires. We will conduct a comprehensive review of all doctrinal, reference, and warfighting publications to ensure that our doctrine, concepts, tactics, and procedures nest within and support composite warfare; modification will be necessary with those that do not. We will assess our current staffs for their ability to integrate in to composite warfare, modifying them where appropriate to increase naval force lethality. Last, we will provide personnel to navy staffs ranging from numbered Fleets through type squadrons in order to create standing naval staffs capable of fighting both Navy and Marine forces immediately.

Stand-In Forces

Over the coming months, we will release a new concept in support of the Navy's *Distributed Maritime Operations* (DMO) Concept and the NDS called – *Stand-in Forces*. The *Stand-in Forces* concept is designed to restore the strategic initiative to naval forces and empower our allies and partners to successfully confront regional hegemons that infringe on their territorial boundaries and interests. **Stand-in Forces are designed to generate technically disruptive, tactical stand-in engagements that confront aggressor naval forces with an array of low signature, affordable, and risk-worthy platforms and payloads.** Stand-in forces take advantage of the relative strength of the contemporary defense and rapidly-emerging new technologies to create an integrated maritime defense that is optimized to operate in close and confined seas in defiance of adversary long-range precision "stand-off capabilities."

Creating new capabilities that intentionally initiate stand-in engagements is a disruptive "button hook" in force development that runs counter to the action that our adversaries anticipate. Rather than heavily investing in expensive and exquisite capabilities that regional aggressors have optimized their forces to target, naval forces will persist forward with many smaller, low signature, affordable platforms that can economically host a dense array of lethal and non-lethal payloads.

By exploiting the technical revolution in autonomy, advanced manufacturing, and artificial intelligence, the naval forces can create many new risk-worthy unmanned and minimally-manned platforms that can be employed in stand-in engagements to create tactical dilemmas that adversaries will confront when attacking our allies and forces forward. Stand-in Forces will be supported from expeditionary advanced bases (EABs) and will complement the low signature of the EABs with an equally low signature force structure comprised largely of unmanned platforms that operate ashore, afloat, submerged, and aloft in close concert to overwhelm enemy platforms.

Stand-in Forces take advantage of the strategic offensive and tactical defense to create disproportionate result at affordable cost. Because they are inherently resilient, risk worthy, inexpensive and lethal they restore combat credibility to forward deployed naval forces and serve to deter aggression. Stand-in force capabilities are much better optimized to confront physical aggression and malign behaviors with physical presence and non-lethal payloads, empowering allies with the ability to defend their own national territory and interests

Expeditionary Advanced Based Operations (EABO)

EABO complement the Navy's *Distributed Maritime Operations* Concept and will inform how we approach missions against peer adversaries. As we move beyond concept to implementation, we must recognize that EABO is not a "thing" – it is a category of operations. Saying we will *do* EABO is akin to saying we will *do* amphibious operations, and as with amphibious operations, EABO can take many forms.

EABO are driven by the aforementioned adversary deployment of long-range precision fires designed to support a strategy of "counter-intervention" directed against U.S. and coalition forces. EABO, as an operational concept, enables the naval force to persist forward within the arc of adversary long-range precision fires to support our treaty partners with combat credible forces on a much more resilient and difficult to target forward basing infrastructure. EABO are designed to restore force resiliency and enable the persistent naval forward presence that has long been the hallmark of naval forces. Most significantly, EABO reverse the cost imposition that determined adversaries seek to impose on the joint force. EABO guide an apt and appropriate adjustment in future naval force development to obviate the significant investment our adversaries have made in long-range precision fires. Potential adversaries intend to target our forward fixed and vulnerable bases, as well as deep water ports, long runways, large signature platforms, and ships. By developing a new expeditionary naval force structure that is not dependent on concentrated, vulnerable, and expensive forward infrastructure and platforms, we will frustrate enemy efforts to separate U.S. Forces from our allies and interests. EABO enable naval forces to partner and persist forward to control and deny contested areas where legacy naval forces cannot be prudently employed without accepting disproportionate risk.

EABO enable the U.S. Navy and Marine Corps to partner and persist forward despite adversary long-range precision fires, a necessary reaction to adversary force development initiatives. However, our ambitions are more aggressive than preserving status quo options, and we seek to restore the strategic initiative by establishing a disruptive and highly competitive space where American ingenuity can capitalize on the new capabilities that naval forces will exploit to deter conflict and dominate confined seas. The U.S. Navy and Marine Corps do not seek to merely "discern the future operating environment," but are determined to define the future character of maritime conflict, so that naval forces will deter or fight from a position of enduring advantage. Inevitably, EABO will evolve in implementation into a wide array of missions, with an equally wide assortment of force and capability combinations required to support them.

Success will be defined in terms of finding the smallest, lowest signature options that yield the maximum operational utility. We must always be mindful of the ratio of operational contribution to employment cost. We will test various forms of EABO against specific threats and ask ourselves whether EABO contributions to the joint force are worth its logistics and security burden. This ratio should always be more favorable than other joint force options contributing a similar capability.

To date, our wargaming has focused on a limited set of scenarios; thus, we will need to expand our analysis across more scenarios to better inform our force design efforts. As in earlier design initiatives, such as seabasing, we are going to build a force that can do EABO opposed to building an EABO force. This distinction is important because our fundamental design principles are independent of EABO. A force composed of highly capable tactical units that can perform combined arms operations at all echelons, enabled by organic air and logistics is a force that can perform EABO – if provided tailored capabilities and training. Determining the exact nature of this specialized training and equipping will be the focus of our EAB implementation actions.

Distributed Operations

New threats, new missions, and new technologies require us to adjust our organizational design and modernize our capabilities. While others may wait for a clearer picture of the future operating environment, we will focus our efforts on driving change and influencing

future operating environment outcomes. One way to drive the continued evolution of the future operating environment is Distributed Operations (DO). DO capable forces are a critically important component of Marine Corps modernization.

Traditionally, the infantry company has been the lowest echelon capable of coordinating the full-range of combined arms, but miniaturization of electronics and increased processing power enable adversaries to empower individuals and small units with combined-arms capability. We must be equal or better than this threat by pushing combined arms to the squad.

Given the imperative for a new force design, codifying DO is critical to implementation. We have been experimenting with DO for two decades, but it is still inadequately developed and lacks a doctrinal foundation, thus it has not driven unit or organizational design, nor has it adequately informed our investment decisions. We will refine DO through experimentation and force-on-force training and by summer 2020, we will begin writing it into doctrine. Our findings will also guide our concurrent Force Design activities.

Our lack of progress in implementing DO is in part due to an inadequate description of why we would distribute forces and why we would conduct distributed operations. In my judgment, we distribute for five reasons:

- We disperse to better accomplish the mission against a distant or distributed adversary.
- We disperse to improve maneuver options in order to gain a positional advantage to assault, or engage more effectively with direct or indirect fires.
- We disperse to reduce the effects of enemy fires.
- We disperse to impose costs and induce uncertainty.
- We disperse to reduce our signature to avoid detection. In a precision strike regime, sensing first and shooting first are a tremendous advantage.

We will structure our experimentation and training to capture the benefits of DO and begin codifying it into doctrine.

Future Force Development

Future force development requires a wider range of force options and capabilities. The Marine Corps must be able to fight at sea, from the sea, and from the land to the sea; operate and persist within range of adversary long-range fires; maneuver across the seaward and landward portions of complex littorals; and sense, shoot, and sustain while combining the physical and information domains to achieve desired outcomes. Achieving this endstate requires a force that can create the virtues of mass without the vulnerabilities of concentration, thanks to mobile and low-signature sensors and weapons. Our desired endstate also requires elite warriors with physical and mental toughness, tenacity, initiative, and aggressiveness to innovate, adapt, and win in a rapidly-changing operating environment.

The amphibious fleet and littoral maneuver craft also require significant future force development. The amphibious fleet must be diversified in composition and increased in capacity by developing smaller, specialized ships, as a complement to the existing family of large multipurpose ships. Doing so will improve resilience, dispersion, and the ability to operate in complex archipelagoes and contested littorals without incurring unacceptable risk. Initial options for examination include:

- A "hybrid" amphibious ship to transport landing craft and enable the ability to fight in a contested littoral.
- An inexpensive, self-deploying "connector" capable of delivering rolling stock on or near-shore in a contested littoral.
- Considering how a wider array of smaller "black bottom" ships might supplement the maritime preposition and amphibious fleets.

Future force development must also contribute to an integrated operational architecture and enable information environment operations. Friendly forces must be able to disguise actions and intentions, as well as deceive the enemy, through the use of decoys, signature management, and signature reduction. **Preserving the ability to command and control in a contested information network environment is paramount.**

Last, we must prioritize research, development, and fielding of emerging and advanced technologies that are applicable within the seaward and landward portions of the littorals. Technologies such as artificial intelligence,

robotics, additive manufacturing, quantum computing, and nanotechnology will continue to change the world - we must be positioned to capture the returns on investment. Similarly, unmanned and autonomous systems will enable greater applications for hydrographic survey, reconnaissance, mine warfare, logistics support, deception, and warfighting. Nascent applications such as swarming and miniature aerial attack systems have the potential to radically change the character of war. Our future force development must include appropriate prioritization in these technologies; however, doing so will not be easy. It will require divesting of legacy capabilities that cannot be economically adapted to meet the demands of the future, while also taking calculated risks in some areas.

WARFIGHTING INVESTMENTS AND DIVESTMENTS

Talent retention

Retention of the most talented individuals within the institution is critical. In order to realize the F-35 capability, cyber capability, AI / Data Science capability, Group 5 UAS and UGV capability, or DO / EABO capability articulated in our concepts, we must reverse the negative trends related to talent retention. This is not a Marine Corps problem; but rather, a joint force problem. This will likely require policy changes as well as adjustments to retention bonuses. If we desire the force articulated in our concepts, then talent retention must be a priority. Just as we will focus on precision fires, our talent management and talent retention efforts must be executed with precision. The blanket provision of bonuses across entire communities will no longer be our weapon-of-choice; but rather, we will seek a more precise option to ensure the most talented individuals – to include those identified as the most competent and capable combat leaders and not just those with the most expensive technical training.

Training and Education

We must change the Training and Education Continuum from an industrial age model, to an information age model. To that end, we need to determine the best way to effect the desired change, which includes the way we select, train and evaluate instructors throughout the continuum, but also the way we inspect formal school houses. At present, our entire system for formal schools management reinforces the industrial age model and therefore needs to be changed. But first, we must codify what is meant by an information age model of training and educating Marines. We have some of this going on across the continuum, but it needs to be the norm, not the exception. We will prioritize funding in support of this transformation.

In addition, we will prioritize funding aimed at further reinforcing the transformation. We must continue to strengthen the process whereby we reinforce the transformation that occurs at Officer Candidate School (OCS) and Recruit Training. This means continuously optimizing MOS production management to limit Marines awaiting training as much as possible, as well as ensuring that while they are waiting, there is a plan for using their time as constructively as possible – to include additional educational opportunities. The last, and probably most important, aspect of this is the warm hand off to our Marine's first operating force unit. This is a difficult task, but we see too many of our youngest Marines either fall through the cracks or get taken advantage of at this critical point in their Marine Corps experience. This will be the subject of additional communication in the future.

Ground-Based Long-Range Precision Fires

Our investments in air-delivered long-range precision fires (LRPF) are known, suitable, and sufficient; however, we remain woefully behind in the development of ground-based long-range precision-fires that can be fielded in the near term which have sufficient range and precision to deter malign activities or conflict. Our capability development focus has fixated on those capabilities with sufficient range and lethality to support infantry and ground maneuver. This singular focus is no longer appropriate or acceptable. Our ground-based fires must be relevant to the fleet and joint force commanders and provide overmatch against potential adversaries, or they risk irrelevance.

We must develop capabilities to facilitate sea denial and sea control; thus, augmenting the fleet and joint force's use of the sea for our own interests while denying adversaries the same possibilities. These capabilities will facilitate the creation of denied spaces by forward postured or deployed naval expeditionary forces with sufficient resilience to persist within the weapons-engagement-zone (WEZ) once actively contested. We must possess the ability to turn maritime spaces into barriers so we can attack an adversary's sea lines of communication (SLOC) while defending our own in support of the Fleet or Joint Force. This goal requires ground-based LRPF with no less than 350NM ranges – with greater ranges desired. Possession of such capabilities is not only an operational imperative based

on the threat, but one that will increase options to commanders, and should radically alter our forward posture once fully realized.

Unmanned Systems

Given well-documented trends in all warfare domains toward increasing range, precision, and lethality of ordnance, ubiquitous multi-spectrum reconnaissance and surveillance, and real-time networked command and control, it is unlikely that exquisite manned platforms represent a complete answer to our needs in future warfare. A likely vision of warfare centers on the recon/counter-recon contest. This demands an agile, stealthy tactical system employing forces that are able to locate, target, and fire precisely first. Exponentially greater precision and lethality of threat weapons demands we reduce exposure of our most expensive platforms and reduce exposure of Marines wherever possible. This means a significant increase in unmanned systems.

This vision, widely discussed since at least the late 1990s, has been slower to arrive than some expected, but gains greater salience as renewed great power competition advances and advanced technology continues to proliferate globally. We have begun adapting to this likely future with tentative and internally-contested steps toward fielding a family of unmanned aerial systems, including the proven long-range, high-endurance armed Group 5 systems that have been ubiquitous in the counter-insurgency warfare of the past decades. We will build upon this progress and work rapidly, starting with POM-22, to develop a much broader family of unmanned systems suitable for reconnaissance, surveillance, and the delivery of lethal and non-lethal effects in the air, on land, and on and under the sea. Development of this family of systems will account for the demands of our role in all phases of a fully integrated naval campaign. **We will prioritize short-term fielding of proven technology, and will significantly increase our efforts to mature unmanned capabilities in other domains.** Mindful that any present vision of the specific nature of future warfare is likely to be flawed, development of our family of unmanned systems will proceed within the framework of a deliberate, fully resourced process of concept development, wargaming, and experimentation. We will meet the inevitable resourcing challenges of experimentation and eventual full fielding as necessary by judicious acceptance of risk and capacity reductions in current capabilities across the force.

C2 in a degraded environment

We have yet to fully develop a robust capability necessary to maintain advantages in the information environment across all seven warfighting functions. This effort will remain a priority for investment and future force development.

Air and Missile Defense (Directed Energy, Counter-Precision Guided Munitions, and Ground-Based Air-Defense)

We must continue to prioritize investments in modern, sophisticated air defense capabilities to include those capabilities which are required by our forward-deployed stand-in forces for persistence inside the adversary WEZ. Regardless of capability enhancements to our overall lethality, if our forward deployed forces are unable to persist inside the WEZ, then they will likely be irrelevant – if not potential liabilities. We are witnessing the emergence of an era of missile warfare, and must ensure our forces possess the capabilities required to mitigate those threats for themselves, the fleet, and joint force. We must expand our research on this issue, and investigate the merits of directed energy capabilities, as well as counter-precision guided munitions (C-PGM) systems for our forward deployed forces.

Artificial Intelligence, Data Science, and Emerging Technology

The Marine Corps confronts an increasingly complex operational environment abroad and a challenging fiscal outlook. The Marine Corps can no longer accept the inefficiencies inherent in antiquated legacy systems that put an unnecessary burden on the warfighters. We do not currently collect the data we need systematically, we lack the processes and technology to make sense of the data we do collect, and we do not leverage the data we have to identify the decision space in manning, training, and equipping the force. Where we have individual leaders and organizations that are trying to adopt the best practices in data science and data analytics, it is often accomplished through the heroic efforts of a few individuals rather than the organized and sustained effort required to transform how we sense, make sense, and act.

We will make strategic investments in data science, machine learning, and artificial intelligence. Initial investments will be focused on challenges we are confronting in talent management, predictive maintenance, logistics, intelligence, and training. In each of those areas, we have significant data ripe for the application of these

tool sets. It is not acceptable to waste resources because we lack the investments in infrastructure, processes, and personnel. These investments will be focused on the application of existing systems and tools (COTS and GOTS). We will leverage the investments other Services have made as a fast follower. These tools will empower our existing analytical community to leverage the advanced education investments the Marine Corps is making in the 88XX community.

"All of our investments in data science, machine learning, and artificial intelligence are designed to unleash the incredible talent of the individual Marine."

The authority to operate (ATO) and information assurance (IA) processes must not be allowed to inhibit the adoption of these technologies and processes. **We will leverage the authorities and guidance in the DON business operations plan to accelerate our transformation from disconnected legacy systems to an integrated data architecture that treats data as it should be – a critical resource. If we need additional authorities we will identify the gaps and pursue the necessary changes to instructions or policy.**

In select cases, we will explore investments in decision support tools that leverage data science and artificial intelligence for the tactical commander. These smaller, high impact investments will facilitate experimentation to determine how it can assist our commanders in the field. While the returns on this investment may be exponential, the technology risk is equally high. We will deliberately partner with our Navy counterparts to maximize the investment and share the risks. We are a naval force. Our tactical and operational IA investments will reflect the inherently naval character and the future character of war as specified in the *National Defense Strategy*.

All of our investments in data science, machine learning, and artificial intelligence are designed to unleash the incredible talent of the individual Marine. By automating the tasks that are repetitive, time-consuming, and routine, we will create the space in the schedule to train, educate, and develop our Marines to the level required by the operational environment. We must set conditions so that the Marines can focus on warfighting tasks rather than data entry and redundant administrative processes. This will make the Marine Corps more lethal. It will also make it easier to recruit and retain the Marines who will be able to excel in the future operating environment.

Divestment Guidance

As we continue to develop our capabilities, we must ensure we have the operationally relevant forces the Combatant Commanders and Fleet Commanders need. It is our responsibility to provide ready forces – forces ready to satisfy Combatant Commander requests for forces. We cannot continue to accept the preservation of legacy capabilities with little to no demand signal, or those that are only being retained in support of surge requirements associated with the least-likely, worst-case scenario. Capabilities and force elements meeting this criteria are candidates for divestment. Such divestitures are necessary so that we may continue to grow our most demanded force elements, to include those that are habitually identified as high-demand, low supply elements within our current Total Obligation Authority (TOA). We cannot allow individuals within the decision-making chain to prevent the procurement of advanced systems and modern capabilities in high demand from our customers due to irrational and empty concerns that "they will be taken from us." As I stated earlier, we provide ready forces, and evidence of the relevance and readiness of our force is customer demand. Furthermore, we will re-scope capabilities and associated force structure in a manner consistent with what is sustainable. We cannot afford to create force structure that our manpower models cannot support.