

Marine Corps University



Academic Year
2022–2023
Student Research Topics

Academic Year 2022-2023

Marine Corps University Student Research Topics

Each year, Marine Corps University (MCU) solicits student research topics from Marine Corps general officers, members of the Senior Executive Service, and select Marine Corps organizations. The topics below were submitted for AY2022-2023. MCU will add to the list if additional topics are submitted. We also encourage students to explore topics in other collections, such as the JPME Prospective Research Topics Database, the USMC Director of Intelligence Proposed Topics, and the Joint Special Operations University topic list. Links to these collections are available on

If you choose a topic from the list below or other topic collections, be sure to:

1. Reach out to the listed point of contact for additional information and to coordinate submission of your results.
2. Notify MCU's Director of Research (kerry.fosher@usmcu.edu) to allow project tracking.

[MCU's Student Research Topics web page](#). Additionally, PP&O has indicated that they have potential research topics beyond those listed below. Interested students can reach out to [LtCol David Saunders](#).

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Force Design Research Questions (MCU Wargaming Directorate/MCWL)

Classification. Project may be unclassified, but could benefit from classified research.

Topic Description/Problem Statement: Force Design Research Questions. MCU is partnered with the Marine Corps Warfighting Lab (MCWL) to address research questions associated with Force Design 2030. Two particular topics are a focus for MCU for this year: the Future Infantry Battalion and the Marine Littoral Regiment. These will both be the subject of deliberate wargames partnering MCU students with MCWL. For those interested in conducting independent research on Force Design 2030, there are a number of other potential areas that could be explored – to include the future for 21st Century Amphibious Operations and future Marine Expeditionary Unit composition and employment.

For those interested in taking on one of these research questions or participating in wargames, contact the Director of MCU's Wargaming Directorate, Mr. Tim Barrick, Col USMC (Ret) at timothy.barrick@usmcu.edu <mailto:timothy.barrick@usmcu.edu> .

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The Future of the MAGTF (HQMC, PP&O priority topic)

Note: This topic is a high priority for DC PP&O. Should students decide to take on this topic, it may be possible to brief findings to the DC or ADC.

Classification. Project may be unclassified, but could benefit from classified research.

Topic Description/Problem Statement: Since its inception, the MAGTF construct has been an evolutionary one. In light of the Service's maturing emphasis on Expeditionary Advanced Base Operations and the contemporary and future operating environments, what utility may the Marine Air-Ground Task Force provide to the joint force in the future?

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

Email Address: david.saunders@usmc.mil

Telephone: 703-692-4383

Desired Research Completion Date: May 2023

Available Funding: Plans and Strategy Division, PP&O can provide funds for TAD in support of research if necessary.

Joint Capability Areas/Joint Matters: Force Support, Force Application, Logistics, Command and Control, Protection, and Building Partnerships

Key Words: Contact, Blunt, and Surge Layers; Joint Warfighting Concept; Anti-Access/Area-Denial; Access, Basing, and Overflight; Expeditionary Advanced Base Operations; Distributed Maritime Operations; Littoral Operations in a Contested Environment; Stand-In Forces; Marine Littoral Regiment

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The Future of Amphibious Operations (HQMC, PP&O priority topic)

Note: This topic is a high priority for DC PP&O. Should students decide to take on this topic, it may be possible to brief findings to the DC or ADC.

Classification. Project may be unclassified, but could benefit from classified research.

Topic Description/Problem Statement: In light of the Service's evolving emphasis on Expeditionary Advanced Base Operations; decreasing availability of traditional amphibious platforms; expected fielding of the light amphibious warship; access, basing, and overflight challenges in the INDOPACOM AOR; the benefits that accrue to adversaries that already occupy key maritime terrain; and other variables, what utility may amphibious entry operations (including forcible entry) provide to the joint force in the future?

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

Email Address: david.saunders@usmc.mil

Telephone: 703-692-4383

Desired Research Completion Date: May 2023

Available Funding: Plans and Strategy Division, PP&O can provide funds for TAD in support of research if necessary.

Joint Capability Areas/Joint Matters: Force Support, Force Application, Logistics, Command and Control, Protection, and Building Partnerships

Key Words: Forcible Entry; Amphibious Raid; Light Amphibious Warship; Amphibious Shipping, Anti-Access/Area-Denial; Access, Basing, and Overflight; Expeditionary Advanced Base Operations; Distributed Maritime Operations; Littoral Operations in a Contested Environment; Stand-In Forces; Force Design; Marine Littoral Regiment

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The Changing Character of War, 2006-2022 (HQMC, PP&O priority topic)

Note: This topic is a high priority for DC PP&O. Should students decide to take on this topic, it may be possible to brief findings to the DC or ADC.

Classification. Project may be unclassified, but could benefit from classified research.

Topic Description/Problem Statement: What themes describe the changing character of war based on a survey of conflicts ranging from the Second Lebanon War in 2006 to the 2022 Russia-Ukraine War and what are the ramifications for the Service? Ramifications may be associated with the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P) framework, national/theater strategy, operational art, the tactical level of war, or any other area desired.

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

Email Address: david.saunders@usmc.mil

Telephone: 703-692-4383

Desired Research Completion Date: May 2023

Available Funding: Plans and Strategy Division, PP&O can provide funds for TAD in support of research if necessary.

Joint Capability Areas/Joint Matters: Force Support, Battlespace Awareness, Force Application, Logistics, Command and Control, Net-Centric, Protection, and Building Partnerships

Key Words: Nature of War, Second Lebanon War, Nagorno-Karabakh War, Mosul, Operation Cast Lead, Gaza War, Yemeni Civil War, Houthi Insurgency, Hamas, ISIS/ISIL, Ingushetia, Libya, Syrian Civil War, Iraq, Russo-Ukraine War, Kurdish-Turkish Conflict, China-India Skirmishes

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The Service Headquarters Operating Environment (HQMC, PP&O)

Classification. Project may be entirely unclassified.

Topic Description/Problem Statement: Publications such as the MCWP 5-10 provide processes to describe the operating environment such as preparing systems diagrams. Other useful tools may include operational variables such as PMESII and civil variables such as ASCOPE. While a planner may draw inspiration from these variables, their intended use does not fully address the needs of a service headquarters directed by law to organize, train, and equip forces.

In the MCWP 5-10's predecessor, the MCWP 5-1, the commander would form his battlespace area evaluation and describe his areas of operations, influence, and interest.

How do you define battlespace for a service chief? What are relevant elements of the environment considering the need to organize, train, and equip forces? What implications for service policy do you derive from your study of the operational environment?

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

Email Address: david.saunders@usmc.mil

Telephone: 703-692-4383

Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Net-Centric, Building Partnerships, Corporate Management and Support

Key Words: Forcible Entry; Amphibious Raid; Light Amphibious Warship; Amphibious Shipping, Anti-Access/Area-Denial; Access, Basing, and Overflight; Expeditionary Advanced Base Operations; Distributed Maritime Operations; Littoral Operations in a Contested Environment; Stand-In Forces; Force Design; Marine Littoral Regiment

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Historical Study of Cross-Domain Deterrence (HQMC, PP&O)

Classification. Project can be entirely unclassified.

Topic Description/Problem Statement: Secretary of Defense Austin introduced integrated deterrence as an emerging concept that will be a priority for the Department for the duration of his tenure. Integrated deterrence will promote whole-of-government approaches; leverage allies and partners; and employ cross-domain deterrence.

Within the context of cross-domain deterrence, theorists define a “domain” broadly as any coercive means or path, whether military or non-military.

The most relevant definitions of cross-domain deterrence are: 1) the act of deterring an action in one domain with a threat in another domain, or 2) a condition in which an opponent has no incentive to initiate conflict via any domain or escalate an existing conflict by any means.

The centrality of deterrence in emerging DoD documents underscores the need to understand deterrence theory, cite specific historical examples, and argue how the Marine Corps supports integrated, cross-domain deterrence. Where possible, highlight examples where Navy and/or Marine Corps capabilities directly or indirectly contributed to deterrence strategies.

See also writings by Thomas Schelling.

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

Email Address: david.saunders@usmc.mil

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Battlespace Awareness, Force Application, Logistics, Command and Control, and Building Partnerships

Key Words: Deterrence theory, USMC roles/responsibilities.

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What if China Successfully Annexes Taiwan? (HQMC, PP&O)

Classification. Project may be unclassified, but could benefit from classified research

Topic Description/Problem Statement: What if China annexes Taiwan? U.S. military planners cannot assume the Chinese strategy will not work. Current strategy and posture is based on an assumption of U.S. military superiority. If China attacks in the region, or peacefully annexes Taiwan, allies and partners may be incentivized to cut a deal, and the U.S. may not be able to turn them back. What are the implications for the Marine Corps in such a scenario? What planning options are viable across a diverse range of possible scenarios?

Date Submitted: July 2022

Desired Objectives of Research: Identify key implications to the Marine Corps and offer near-term strategic choices to hedge against this possible future.

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Force Support, Battlespace Awareness, Force Application, Logistics, Command and Control, Net-Centric, Protection, and Building Partnerships

Key Words: China, Taiwan, INDOPACOM

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Preparing for Protracted Conflict (HQMC, PP&O)

Classification. Project may be unclassified, but could benefit from classified research

Topic Description/Problem Statement: Following the Cold War, planning for protracted great-power war contingencies was essentially abandoned. Now, however, China is emerging as a peer with the social, economic, and industrial capacity to mobilize existing forces, and generate replacement forces, in a protracted fight. U.S. defense leaders and planners must understand the characteristics of contemporary protracted great-power war, which are likely to be far different from those of both recent conflicts and World War II—the last protracted great-power conflict.

DoD would also benefit from questioning assumptions about supplying a protracted conventional war in the twenty-first century. Chief among these is that the United States can simply mobilize its economy as it did for both world wars. World War II saw the nation retool its economy and churn out warships, tanks, aircraft, guns, and other equipment. DoD's existing plans for mobilizing the economy in a large-scale war or crisis takes for granted that industry can be not only mobilized, but mobilized quickly. Joint Publication 4-05, Joint Mobilization Planning states that the industrial base will be "expanded," will "surge production," and will "accelerate output" without detailing how the expanding, surging, or accelerating will be accomplished. It only mentions in passing obstacles and side effects with little or no discussion of how to mitigate them. While such nationwide mobilization is not necessarily impossible, the modern economy has made this increasingly difficult, time consuming, and expensive. As Mark Cancian wrote in *War on the Rocks*, today's economy is optimized for efficiency, not for massive wartime production. A major conflict with a near-peer adversary would rapidly burn up the United States' and allies' relatively small stockpiles of munitions and equipment more quickly than industry could keep up with—especially as supposedly low-intensity wars have rapidly used up munitions at a faster rate than the military's logistics systems can accommodate.

During the past twenty years of counterinsurgency and counterterrorism operations, the United States has come to rely on "just in time" logistics to supply its forces in these low-intensity operations against irregular enemies. This is also true of civilian supply chains, as the 2020 COVID-19 pandemic has demonstrated. When a protracted crisis hits, "just in time" logistics simply lacks resilience against shocks and disruptions. During a protracted conventional conflict where getting supplies to their destination will be buffeted by shocks and disruptions, "just in time" could end in disaster. However efficient this method may be for companies during peacetime, cutting costs and healthy profit margins do not win wars.

Date Submitted: July 2022

Desired Objectives of Research: Identify implications for the Marine Corps and offer near-term recommendations to prepare the Marine Corps for protracted conflict.

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Force Support, Battlespace Awareness, Force Application, Logistics, Command and Control, Net-Centric, Protection, and Building Partnerships

Key Words: great powers, peer competition, mobilization, industry, logistics, economy, munitions, supply chain

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USMC Munitions Inventories (HQMC, PP&O)

Classification. Project may be unclassified, but could benefit from classified research

Topic Description/Problem Statement: Since the end of the Cold War, the U.S. has fought limited conflicts against lesser, regional adversaries with little credible capacity to deplete the U.S. munitions inventories or the industrial capacity to outpace U.S. production.

Recent wars in Iraq and Afghanistan did not seriously strain U.S. supplies of ammunition because “most individual battles were relatively small and short engagements against low-tech enemies.” Earlier DoD procurement patterns focused on meeting limited operational needs at the expense of DIB sustainment.

This strategic situation has changed. China’s military modernization, emphasis on long-range precision strike, and implementation of intelligitized capabilities is likely to increase the speed of future combat. Accordingly, U.S. military planners increasingly anticipate that “future battlefield actions and strategic moves and counter-moves are likely to unfold at lightning speed,” and “ammunition—especially advanced precision munitions—will likely be consumed at a ferocious pace.”

As the Service considers future fiscal tradeoffs, it should carefully assess the marginal value of additional weapons platforms versus additional munitions inventories. If, as some assert, USMC weapons platform capacity exceeds current munitions inventory, it is possible that a high-intensity conflict could quickly leave the Service’s modernized forces and sophisticated systems without the munitions necessary to continue the fight. For the deferred cost of a single F-35, the U.S. Marine Corps could significantly invest in its magazine depth.

Just as tactical commanders calculate the quantity of ammunition the force will carry into a mission, service-level planners should, therefore, calculate munitions inventory and prepositioning requirements based on anticipated expenditures and the speed, capacity, and assurance of resupply.

Date Submitted: July 2022

Desired Objectives of Research: Identify implications for the Marine Corps munitions inventories and offer near-term recommendations to supply chain vulnerabilities.

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Force Support, Logistics, Net-Centric, Protection, and Building Partnerships

Key Words: High-intensity conflict, great power competition, peer competition, mobilization, industry, logistics, economy, munitions, supply chain

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USMC Supply Chain Vulnerabilities (HQMC, PP&O)

Classification. Project may be unclassified, but could benefit from classified research

Topic Description/Problem Statement: Since the end of the Cold War, the U.S. has grown accustomed to planning for limited conflicts against lesser, regional adversaries with little credible capacity to deplete our current military inventories, much less the industrial capacity to outpace our production.

Wars are long. Historians often define the beginning and end of wars in terms of battles and campaigns, when in reality war often entails a protracted multi-decade struggle. For example, were World War I and World War II really two distinct wars or two parts of a single war? Was the Six Day War really only six days, or was it a multi-decade struggle? In long wars you must sustain combat power over the entire period of competition and conflict. Since the end of the Cold War, the U.S. has grown accustomed to planning for limited conflicts against lesser, regional adversaries with little credible capacity to deplete our current military inventories, much less the industrial capacity to outpace our production. Not since the American Revolution has the U.S. fought a great power with anything less than the premier industrial base. This has arguably changed. If we have a war in the Indo-Pacific, it will be long and lethal.

The U.S. Defense Industrial Base is fragile. Today, the U.S. has the world's premier research and development base, but not the premier production base. It is vastly smaller, enormously consolidated, and full of single points of failure. If a single-source supplier is out, the DoD is out. Meanwhile, its outputs fall exponentially short of meeting our needs in conflict and the capacity to surge production is woefully inadequate. Worse yet, there are many things we simply do not make in the U.S. anymore.

- There are only 100 critical production facilities in the U.S. DIB, a number sufficiently small that China could easily target via kinetic or non-kinetic means. Disruption of U.S. DIB sites and the networks that connect them could hobble our capacity to compete for numerous months or likely years.
- Our current CONUS posture and reliance on TRANSCOM present easy targets for China to disrupt our deployment and sustainment of forces. To date, we have not enabled Red Cells to attack our movement and initial deployment of forces in high-level wargames.
- Forward posture offsets this vulnerability and implies a need for increased in-theater stockpiling. For those items of vital national interest (e.g., semiconductors) we should consider stockpiling like the Strategic Petroleum Reserve.

U.S. military platform capacity exceeds our munitions inventory. The U.S. has a tendency to favor platform modernization and use munitions accounts as bill payers. We are under-invested in precision guided munitions (PGM) and stand-off munitions. This is endemic and has gone on for decades. For instance, we nearly ran out of cruise missiles in Kosovo. We were able to surge production, but only by suspending production of other types of missiles. Total production capacity is finite. In a war with China, this is inadequate. If the U.S. Air force sends all its bombers to a fight against China, twenty sorties can consume a year's worth of cruise missiles in about a day-and-a-half. If our supply chain is at risk, our current stockpiled inventories must grow.

Quantity has a quality of its own. We have a bias toward high-quality/low density systems. The things we make and know how to make well are the high-quality few. We have to live with the current mindset, but must move to many/disposable mindset against an adversary that has the quantity advantage. Flood the battlespace with inexpensive (cost-imposing) mass that is expensive to repel. Incorporate low-cost commercial technologies to achieve modern mass effects and complicate the battlefield for the adversary. This can get us on the right side of the cost/benefit equation.

Date Submitted: July 2022

Desired Objectives of Research: Identify implications for the Marine Corps and offer near-term recommendations to supply chain vulnerabilities.

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

(Note – students considering this topic also should contact MCU’s Provost via the Director of Research kerry.fosher@usmcu.edu)

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Force Support, Logistics, Net-Centric, Protection, and Building Partnerships

Key Words: High-intensity conflict, great power competition, peer competition, mobilization, industry, logistics, economy, munitions, supply chain

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Navy/Marine Corps Educational Integration (HQMC, PP&O)

Classification. Project may be entirely unclassified.

Topic Description/Problem Statement: There is no overall strategic direction or leadership for naval education or naval organizational learning; nor a successful value proposition for education as a unifying naval warfare capability; nor effective unity of command in its resourcing, policy and programming for education; nor correct prioritization for education's vital role in balancing the character and nature of war. - Education for Seapower Final Report

Reorienting on the maritime domain after twenty years of land warfare requires recalibration of training and educational foci and resetting each individual's and unit's perspective of amphibious baseline readiness. A coherent, unified Navy and Marine Corps effort will be required. New warfighting approaches, new technology, and new capabilities cannot be effectively implemented without updated training and education reaching all elements of a functional organization. In this instance, the organization is the Navy and Marine Corps.

The resurgence of peer competition and the proliferation and speed of adversary technological capabilities represent a formidable threat. To that end, the 2018 National Defense Strategy described military education as "stagnated, focused more on the accomplishment of mandatory credit at the expense of lethality and ingenuity." The Department of the Navy's subsequent 2018 Education for Seapower Final Report stated, "The combination of a new strategic direction and rapidly advancing technologies represents an inflection point, one that absolutely must be countered by changing our current emphasis on how we educate and think about the future."

Historically, inflection points are easier to identify than to act upon, and these are only two examples of documents reinforcing the identification of a need for change. A 2018 review by one of our closest allies concluded development of an "intellectual edge would be the deciding factor for success." The Secretary of the Navy recently reinforced this by directing the naval services to engage in a campaign of continuous learning focused upon developing that "intellectual edge." He further communicated his expectation for the services to "provide appropriate education pathways to build competencies that advance our warfighting advantage" and promote "officers who embrace the opportunity and professional responsibility to learn the art and science of war."

People are the critical component in warfighting. Efforts to mature the force as outlined in the Commandant's Planning Guidance and Force Design 2030 should be considered against the backdrop of seeking to increase amphibious expertise and capability. One cannot be accomplished without the other. Training and education are foundational to organizing for amphibious operations. Talent management practices, particularly those impacting instructors and faculty, drive training and education.

The Navy and Marine Corps are not aligned in amphibious training, education, or certification. The services produce few Marine AMW WTIs, and there are few Navy students at Marine schools. There are many pathways to amphibious expertise, yet there is no single advocate. There are many organizations that all have similar missions without an integrated approach to training and certification. The naval services' separate training and education systems do not provide sufficient amphibious expertise and levels of individual and unit specialization required by the future operating environment.

A unified Naval Education Enterprise was proposed in the 2018 Education for Seapower (E4S) Final Report and clarified within the three pillars of the Navy's 2020 Education for Seapower Strategy. There has been little progress made on the recommendations of the E4S Final Report or the Navy's E4S Strategy to date. However, one of the first official acts of Secretary Del Toro was a memorandum on Continuous Learning for Naval Officers. He stated, "Educating our current and future leaders is a necessary investment in the Department's readiness and competitive advantage."

Educational convergence between Navy and Marine Corps personnel is critical to achieving naval integration. There appears to be dissonance between stated education priorities and reality in the Navy and Marine Corps. "Blue-Green Team" and "naval interoperability" are terms in common usage within both services, but cross-service student attendance and faculty assignment numbers suggest otherwise. The rhetoric does not match the reality.

Expeditionary Warfare School (EWS), the Marine Corps' premier company-grade educational experience, had no Navy students for FY21 or FY22. Likewise, few Marines attend Navy schools or warfare tactics instructor (WTI) courses.

Faculty and instructor demographics are a leading indicator of the importance placed upon training and educational alignment. Faculties should be integrated in a manner necessary to ensure true expertise in Navy and Marine Corps topics. There are some good efforts in this area—EWS employs a Navy SWO who is also a certified Amphibious Warfare WTI as a course director and principal instructor for courses in amphibious operations. The individual who held this billet at EWS from AY18-AY20 was selected and slated for command of an LSD. This prime example of the caliber of individuals desired in faculty exchange positions is the exception, however. There are several instances where faculty or staff were passed over for promotion, and a recent study highlighted a disconcerting trend of the Marine Corps not valuing its instructors. This is especially critical in a period of change, and it applies to officers and enlisted personnel. The instructors and faculty are the center of gravity in training and education.

To better support naval integration, both services should consider a concerted, unified effort to promote, resource, and prioritize on behalf of both what and whom they say they value. The findings and recommendations of the 2018 Education for Seapower Final Report are a tremendous place to start. The timely seizure of these opportunities requires action be taken now.

Date Submitted: July 2022

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: HQMC, PP&O

Point of Contact: LtCol Dave Saunders, Branch Head, Strategy Branch, Strategy and Plans Division

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Desired Research Completion Date: May 2023

Available Funding: None.

Joint Capability Areas/Joint Matters: Force Support, Logistics, Net-Centric, Protection, and Building Partnerships

Key Words: education, talent management

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USMC Integration with USSF (Joint Staff, J6)

Classification: Unclassified

Topic Description/Problem Statement: Following the designation of U.S. Space Force (USSF) as a branch of the U.S. military, how will the USMC integrate with the USSF to improve interoperability, increase lethality, and outpace near peer competitors such as China and Russia that are modernizing their armed forces and thus challenging U.S. military advantage in every domain and across all joint warfighting functions?

Date Submitted: May 2022

Extended Topic Description: The purpose of this topic is to encourage thought about how the Marine Corps can leverage emerging concepts and capabilities such as JADC2 that will be heavily dependent on outer space.

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization: Joint Staff, J6

Point of Contact: LtCol Jason Quinter, National Strategy Chief, J6

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Telephone: 703-571-9588

Desired Research Completion Date: N/A

Available Funding: none

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C4/Cyber Literacy Across the MAGTF (Joint Staff, J6)

Classification: Project could benefit from classified research

Topic Description/Problem Statement: How can the USMC improve its entire education and training continuum to increase C4/cyber literacy across the MAGTF?

Date Submitted: May 2022

Extended Topic Description: With the proliferation of game-changing technologies such as artificial intelligence (AI), machine learning, manned-unmanned teaming, 5G, low earth orbit (LEO) satellite constellations, quantum computing, and modernized cryptography, Marines of every rank must improve their knowledge and understanding of command, control, communications, computers, and cyber. There is a saying that “amateurs talk tactics and professionals talk logistics”. No such saying exists for the command and control warfighting function. Historically, the USMC has done a fine job of teaching MCDP-6 and our C2 philosophy (at every level of war) in our formal schools (education) and in the FMF (training). Simply stated, ensuring that every Marine has a basic understanding of C4/cyber isn’t good enough anymore; the Marine Corps must raise the bar. Gone are the days when Commanders at any level can simply rely on Marines from the 06XX, 72XX, and 17XX communities to just “go do some of that comm / cyber stuff”. Similar to the Marine Corps’ efforts to improve cultural literacy as a way to fight and win in a counterinsurgency throughout OIF and OEF, the Marine Corps must improve C4/cyber literacy in order to prevail in future conflicts that promise to be highly dependent on all of the aforementioned complex game-changing technologies. It is time to leap forward by focusing on the knowledge and understanding of every Marine, not just select military occupational specialties. We don’t need to make every Marine a C4 / cyber expert, but we need to improve knowledge and understanding across the board to fight and win in a highly connected operating environment.

Desired Objectives of Research: N/A

Requesting/Sponsoring Organization:

Point of Contact: LtCol Jason Quinter, National Strategy Chief, J6

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Desired Research Completion Date: N/A

Available Funding: none

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Time for a change?: Elevation of NATO from a regional to a strategic-level organization (STRIKFORNATO)

Classification: Project may benefit from access to classified resources or produce a classified result

Topic Description/Problem Statement: NATO is touted as the world's most successful and enduring political/military alliance. Arguably, no other organization has the capacity, expertise, or historical experience to shape the strategic environment. What are the factors that are preventing NATO from achieving this expanded role across the global stage?

Date Submitted: May 2022

Extended Topic Description: N/A

Desired Objectives of Research: Objectively present and defend a proposal for NATO's future role as an unique, political-military organization at the strategic level.

Requesting/Sponsoring Organization: Naval Striking and Support Forces, NATO (STRIKFORNATO)

Point of Contact: Col Sean Carroll, Deputy J5

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Desired Research Completion Date: 1 Jun 2023

Available Funding: none

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Environment-specific forces: The Marine Arctic Regiment (STRIKFORNATO)

Classification: Project may benefit from access to classified resources or produce a classified result

Topic Description/Problem Statement: The Marine Corps devotes a large amount of resources and training to be generally capable of winning in any clime and place. However, unit rotation schedules, retention impacts, and a service-level intent to deploy forces across a wide spectrum of environments and range of operations has artificially limited the attainment of enduring expertise. Retaining a competitive edge against peer adversaries who are displaying increased determination to thrive in contested environments is increasing the risks placed on employed units and individual Marines. The High North (Arctic) is arguably becoming the most high-visibility contested environment.

Date Submitted: June 2022

Extended Topic Description: N/A

Desired Objectives of Research: Frame a proposal to HQMC on the benefits and realistic implementation of a Marine Arctic Regiment, and other units specifically designated for distinct environments.

Requesting/Sponsoring Organization: Naval Striking and Support Forces, NATO (STRIKFORNATO)

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Desired Research Completion Date: 1 Jun 2023

Available Funding: none

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Legal and Policy Implications of Adversarial Machine Learning Operations

Classification: Project does not require classified research, but access to classified materials could be beneficial

Topic Description/Problem Statement: Adversarial Machine Learning (AML) is a burgeoning field of research, yet there is limited exploration of what operational or intelligence authorities are implicated, depending on how, exactly, the ML system is manipulated.

Approaches to accomplishing AML could include modifying the learning model/training algorithm, data pools from which the training data is gathered (be it scraped, commercially obtained, open source/publicly available, etc.), or of the training and/or testing data sets used during model development. These varying approaches have myriad legal, policy, and strategic implications, including privacy and data protection laws, anti-hacking statutes, operational authorities, intelligence oversight, public and international perception, risk of escalating tensions, and others. Current technical research into AML does not comment on these issues; current policy research does not sufficiently delineate between the precise methods of accomplishing AML in order to accurately highlight the resulting implications and typically just presents generalized concerns.

Date Submitted: June 2022

Extended Topic Description: N/A

Desired Objectives of Research: An in-depth technical explanation of the various (primary?) approaches to accomplishing AML, with an overview of the specific risks, policy, or legal issues attendant with each approach. This is not (just) a law/policy paper, but really a technical paper on different approaches to accomplishing AML, followed by a discussion of attendant issues, without necessarily proposing answers to them all. As with the attention and discussion over autonomous weapons, there has been a fundamental misunderstanding over how the technology works throughout much of it, therefore diminishing our ability to have informed and intelligent discussions on effective regulation/employment.

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Desired Research Completion Date: not provided

Available Funding: none

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