Members of the Civilian Leadership Development Program receive a demonstration of Special Operations Forces capabilities at Melrose Air Force Range, New Mexico, 30 January 2019. U.S. Air Force Photo by Staff Sgt. Luke Kitterman

The JSOU *Special Operations Research Topics 2020* publication, newly revised for academic year 2021 with 18 new topics, highlights a wide range of research topics collaboratively developed and prioritized by experts from across the Special Operations Forces (SOF) community. As with the previous versions of this publication, this list is tailored to address special operations priorities. The topics in these pages are intended to guide research projects for professional military education (PME) students, JSOU faculty, fellows and students, and others writing about special operations during this academic year. This research will provide a better understanding of the complex issues and opportunities affecting the strategic and operational planning needs of SOF.

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Special Operations Research Topics 2020 (Revised)

Special Operations Research Topics 2020

Revised Edition for Academic Year 2021

JSOU

Joint Special Operations University and the Department of Strategic Studies

The Joint Special Operations University (JSOU) generates, incubates, and propagates (delivers and communicates) ideas, education, and training for expanding and advancing the body of knowledge on joint and combined special operations. JSOU is a 'hybrid organization' that performs a hybrid mission—we are a 'corporate university:' an academic institution serving a professional service enterprise, 'by, with, and through,' the United States Special Operations Command (USSOCOM). As such, we are both a direct reporting unit to the Commander, USSOCOM, on all Combined Joint Special Operations Forces (CJSOF) education and leader development matters, as well as the educational and leader development component of the Command.

The Mission of JSOU is to create and deliver SOF-specific education and training to the USSOCOM world-wide enterprise and priority global partners through leading-edge knowledge and expertise aligned with top U.S. security priorities, to influence the current and future strategic environment. **Our Vision** is to constantly strive to be(come) USSOCOM's "think-do tank," world-class leader in "All Things" CJSOF strategic and operational education, training, and leader development, and the advancement of knowledge on the utility of CJSOF, for the Nation. We pursue this mission and vision through our best-practice teaching & learning (T&L), research & analysis (R&A), and engagement & service-outreach operations, activities, and initiatives. We achieve these outcomes-based goals by providing specialized joint professional military education (PME), developing SOF-specific and unique undergraduate, graduate, and post-graduate-level equivalent curriculum, and by fostering special operations-focused R&A and outreach, in support of USSOCOM objectives and United States national and global strategic goals.

JSOU carries forward its R&A roles and responsibilities led by, and through, its Department of Strategic Studies (JSOU-S), where our efforts are guided and informed by the most current U.S. National Security, Defense, and Military Strategies, and the **USSOCOM Mission:** *USSOCOM develops and employs fully capable Special Operations Forces to conduct global special operations and activities as part of the Joint Force to support persistent, networked, and distributed global Combatant Commands operations and campaigns against state and non-state actors, to protect and advance U.S. policies and objectives.*

Joint Special Operations University

JSOU Press publications are available for download from the USSOCOM Research Library webpage, accessible at: https://jsoulibguides.com/jsoupublications.

JSOU is "SOF's Advantage," committed to continually "sharpening the edge" of SOF's Advantage, for the Nation.

Special Operations Research Topics 2020

Revised Edition for Academic Year 2021

The JSOU Press
MacDill Air Force Base, Florida
2020

Comments about this publication are invited and should be forwarded to the Director, Department of Strategic Studies, Joint Special Operations University, 7701 Tampa Point Blvd., MacDill AFB, FL 33621.

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The JSOU Department of Strategic Studies is currently accepting written works relevant to special operations for potential publication. For more information, please contact the Director at jsou_research@socom.mil. Thank you for your interest in the JSOU Press.

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On the cover. Clockwise starting top:

Marine Raiders from Marine Corps Forces Special Operations Command (MARSOC) K-9 Unit conduct water casts off the coast of Naval Air Station Key West during the Special Operations Command's multipurpose canine handler training. U.S. Navy Photo by Danette Baso Silvers/Released

SEAL Team 7 members jump from an MC-130J Commando II during Emerald Warrior/Trident at Naval Air Station North Island, California, 19 January 2019. U.S. Air Force Photo by Staff Sgt. Erin Piazza

A Lithuanian National Defence Volunteer Forces (KASP) soldier provides overwatch for a raid as part of exercise Saber Junction at the Grafenwoehr Training Area, Germany, 27 September 2018. Special Operations Forces work alongside the KASP during Saber Junction 18 to conduct irregular warfare in enemy occupied territory. U.S. Army Photo by 1Lt Benjamin Haulenbeek

Aircrew from the 9th Special Operations Squadron perform preflight checks before takeoff in an MC-130J Commando II during Emerald Warrior/Trident at Naval Air Station North Island, California, 21 January 2019. U.S. Air Force Photo by Staff Sgt. Erin Piazza

Back cover. Members of the Civilian Leadership Development Program receive a demonstration of Special Operations Forces capabilities at Melrose Air Force Range, New Mexico, 30 January 2019. U.S. Air Force Photo by Staff Sgt. Luke Kitterman.

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Contents

The proposed topics suggested in this publication are entirely views of the author of this publication and do not necessarily reflect the views, policy, or position of the United States Government, Department of Defense, United States Special Operations Command, or the Joint Special Operations University.

Editor's note on this new edition. Newly revised for academic year 2021, Special Operations Research Topics 2020 remains the go-to resource for academic researchers and professional military education students interested in the pursuit of research that will advance the mission of U.S. Special Operations Forces. JSOU is pleased to include new topics of importance, topics that were submitted from throughout the special operations community. These topics are added to the end of each topics section. Thank you for your interest in special operations relevant research. If you do complete research on one of these topics, please contact us at jsou_research@socom.mil.

Foreword

The Joint Special Operations University (JSOU) provides joint Special Operations Forces (SOF) Education for joint, interagency, intergovernmental, and multinational (JIIM) students and educators to develop agile JIIM leaders who think differently, critically, and creatively in order to adapt to the future SOF operating environment. This is done through specialized joint professional military education (PME) and by fostering special operations research—research that will be shaped by the research topics contained within the covers of this publication. In this way, JSOU helps place SOF at an advantage to cognitively outpace competitors in operational and strategic environments.

The *Special Operations Research Topics 2020* publication, newly revised for academic year 2021, highlights a wide range of topics collaboratively developed and prioritized by experts from throughout the SOF community. The topics in these pages are intended to guide research projects for PME students, JSOU faculty, fellows and students, and others writing about special operations during this academic year. This research will illuminate blind spots, provide a better understanding of complex issues and opportunities, and contribute to the evolution of the way SOF leaders think.

Our research topics are organized to support the special operations priorities of the Commander, United States Special Operations Command (USSOCOM). This list of topics was generated from recommendations solicited from the USSOCOM headquarters staff, the theater special operations commands (TSOCs), component commands, SOF chairs from the war colleges, and select research centers and think tanks. The topic submissions were then reviewed, revised, rated, and ranked at the annual Special Operations Research Topics Workshop. That workshop produced the first draft of this comprehensive list of issues and challenges of concern to the greater SOF community. The list was reviewed and vetted by the headquarters, TSOCs, and component commands prior to publication.

I challenge the members of the SOF community involved in academia to use their intellect to ignite new ideas and lead the way as a catalyst for innovation. These research topics will give you a head start on deciding where to focus your research effort. Once your research is complete, I encourage

you to send your findings to the JSOU Center for Strategic Studies within the College of Special Operations via e-mail at jsou_research@socom.mil. Good luck in your academic pursuits.

Scott M. Guilbeault, Colonel, U.S. Air Force
Vice President

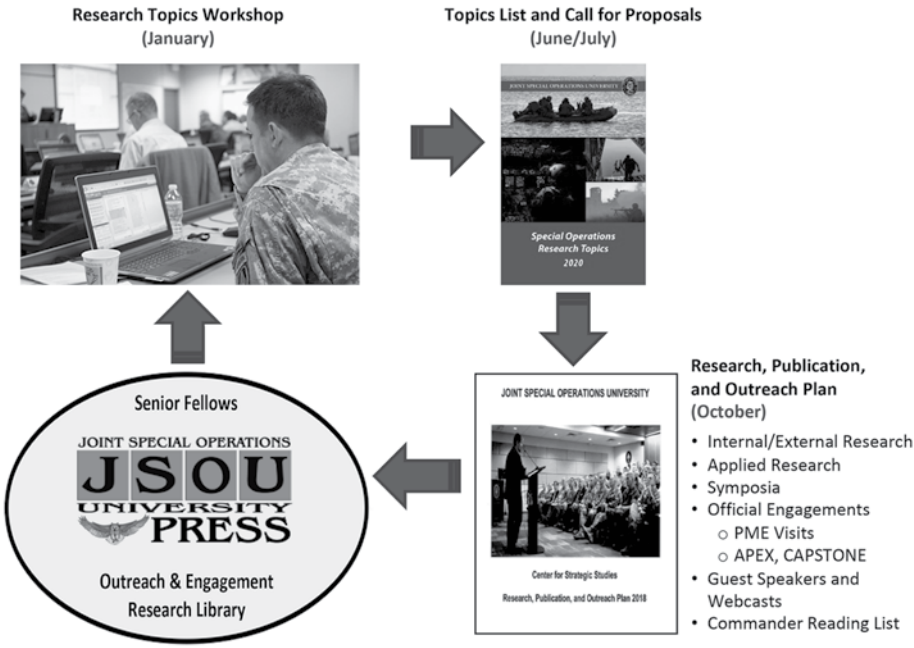

Figure 1. The JSOU Research Process. The process begins with the priorities of the Commander, USSOCOM. After research topics nominations are solicited from throughout the special operations community, and then reviewed, revised, rated, and ranked at the annual Special Operations Research Topics Workshop, the Special Operations Research Topics publication is created and distributed. The topics in that publication form the foundation and focus of research among the greater SOF community. Through the JSOU annual research plan, resources are aligned with research priorities in a programmatic approach to answer pressing research questions. Source: JSOU

Introduction

Joint Special Operations University's (JSOU) publication of *Special Operations Research Topics 2020,* newly revised for academic year 2021 with 18 new topics, represents a list of Special Operations Forces (SOF)-related research topics proposed so that the resulting research can provide insight and recommendations on issues and challenges facing the SOF enterprise. As in previous years, this list is tailored to address the United States Special Operations Command (USSOCOM) Commander's special operations priorities. This year's topics focus on how the confluence of information, technology, and innovation (artificial intelligence, machine learning, cyber operations, and big data) affect these issues.

SOF professional military education students research and write on timely, forward-thinking, and relevant, SOF-related topics. Such activity develops the individual's intellect and provides a professional and practical perspective that broadens and frames the insights of other analysts and researchers in regard to these topics. This list, and the accompanying topic descriptions, are a guide to stimulate interest and thinking. Topics may be narrowed or otherwise modified as deemed necessary (e.g., to suit school writing requirements or maximize individual interests and experiences). The researcher should explore and identify doctrine, capabilities, techniques, and procedures that will increase SOF effectiveness in addressing them. At the same time, research on these topics may be used to inform policymakers, military professionals, and the public of the issues and challenges facing the SOF community.

Section A (Priority Topics) identifies topics of significant importance that have impacts across the SOF enterprise. Sections B through F focus on the USSOCOM Commander's five special operations priorities:

- Compete and Win for the Nation
- Preserve and Grow Readiness
- Innovate for Future Threats
- Advance Partnerships
- Strengthen our Force and Family

These topics reflect a consensus of the SOF experts who participated in the research topics workshop as particularly worthwhile in addressing

immediate SOF needs and in building future capacity for emerging challenges. The 35 participants included representatives from the USSOCOM Service Components, sub-unified commands, USSOCOM Headquarters Directorates, and representatives from select academic organizations to include: Canadian Special Operations Forces Command Education and Research Centre, Naval Postgraduate School, Naval War College, National Defense University College of Information and Cyberspace, Embry-Riddle Aeronautical University, University of Tampa, University of South Florida, University of Central Florida, University of New Hampshire, University of Texas at El Paso, and the Program on Irregular Warfare at the University of Maryland. The topics have been vetted through the USSOCOM headquarters, theater special operations commands, and components prior to publication to ensure emerging topics were addressed.

Please share this reference with fellow researchers, thesis advisors, and other colleagues and feel free to submit additional topics for consideration in future research topics publications. You may also visit our library website to see if JSOU has a publication that relates to your area of interest. We encourage you to send us your completed research on these topics.

A Note on the Relevance of Previous Years' Topics Lists

Previous years' research topics lists provide a repository of issues that may continue to have research relevance—especially the prior year's list. Previous editions of these publications (2009 through 2020) are available on the JSOU library public website on the JSOU Press publications page located at: https://jsou.libguides.com/jsoupublications.

Five Special Operations Priorities

Compete and Win for the Nation

Protect our interests and address today's challenges

Special Operations Forces (SOF) provide unique capabilities to help the Nation prevail, especially in competition below the level of armed conflict. Countering Violent Extremist Organizations (CVEO) that threaten the Homeland and U.S. interests remains the top priority for United States Special Operations Command. As the Coordinating Authority for CVEO, our focus is to counter a resonant ideology, deter the international flow of foreign fighters, dismantle their command and control, and disrupt their resources that flow across boundaries.

We are also directed to coordinate Department of Defense (DOD) efforts for Countering Weapons of Mass Destruction (CWMD) and internet-based Military Information Support Operations (MISO). Through our CWMD Fusion Cell, Joint MISO Web Ops Center and other information operation elements, we will maintain important relationships to promote unified action across the U.S. Government. We will sustain planning efforts, constantly assess campaign progress, and provide implementable recommendations to the Department for these efforts.

Preserve and Grow Readiness

The right people, skills, and training to maximize our competitive edge

SOF readiness begins with superior selection, training, education, and talent management. Standards must be rooted in objective operational requirements and values based decision making. Readiness is enhanced by ensuring our force is equipped with interoperable and reliable equipment that is field tested during pre-deployment training and validation exercises.

We will sustain investments in the National Mission Force and continue investments in enterprise readiness reporting. We will meet the Department's directed 1 :2 deployment to dwell ratio and strive to achieve a 1 :3 goal. We will continue to increase readiness, provide predictability and stability to our force, and mitigate PERSTEMPO* impacts.

** PERSTEMPO stands for personnel tempo and is a congressionally mandated program, directed by the Office of the Secretary of Defense. It is a method to track and manage individual rates of deployment (time away from home).*

Innovate for Future Threats

Relentlessly build the competitive advantage

Future SOF must be more lethal, trans-regionally integrated, and effective in contested domains. We must field overmatch technologies and tactics that exploit adversary vulnerabilities and negate near-peer competitor advantages. We will pursue clear priorities for combat development, focus innovation and modernization efforts, and think critically about capabilities at the tactical edge to enable our SOF professionals. Great ideas come from all levels of our formation. We will listen to the force and embrace transparency in the requirements process. We will ensure that what we develop is operationally sustainable, shared and interoperable throughout DOD, and can grow to scale.

We will streamline our requirements process to respond rapidly to future requirements, press the limits of research and development in our acquisitions, and lead the Department in the use of recent acquisition reforms. We will exploit revolutionary technological inflection points. Artificial intelligence, machine learning (Al/ML) and cloud computing are demonstrating the potential to bring leap ahead capabilities. We will develop our Experimentation Force (EXFOR) and our exercise programs to ensure that we are developing new approaches to competing and fighting in the future that provide asymmetric advantage and supported by the right technologies, equipment and capabilities.

Advance Partnerships

Create opportunities through our unique global understanding and placement

SOF must leverage its organic cultural and regional expertise, worldwide placement and access and our robust communications networks to make us inherently collaborative team builders. We will maximize transparency, while protecting operational security, in our Defense and lnteragency relationships. We will leverage the authorities and capabilities of our allies and partners to achieve our mission objectives, and will assign world-class Liaison Officers who provide insight and access to decision makers and commanders and who are trusted in their own and hosting organizations.

Strengthen our Force and Family

Solemnly commit to the short and long term well-being of our SOF Family

Our people are our most precious resource. Our military, civilians and their families—not platforms or equipment—provide SOF with its competitive advantage. We will leverage Service, community, and SOF resources to protect our long-term investment in our personnel. Our Preservation of the Force and Families, Warrior Care, Religious Services and Joint Special Operations University educational programs will provide comprehensive support to all elements of our human capital (physical, mental, ethical, cognitive, emotional and spiritual). We will seek resources to extend care to and reduce risk in every part of our formation. We will improve human performance to preserve our investments in our SOF personnel, bolster their resiliency, lengthen their careers, and assist in a healthy transition. All efforts are designed to keep faith with our people, now and forever.

A. Priority Topics

Topic Titles

A1. Influence and counterinfluence
A2. Optimizing SOF for the Future Operating Environment (FOE)
A3. Strategic sabotage: Historical lessons with future potential
A4. Measuring the effectiveness of SOF campaigning: Converting tactical effects into strategic impacts
A5. SOF FOE 2035
A6. Resistance/counter-resistance operations
A7. Alliance dynamics
A8. Maneuver paradigms for the 21st century
A9. Evolution of SOF culture for the FOE
A10. Future SOF global employment structure and organization
A11. Disruptive innovation efforts
A12. SOF ethos and ethics (revised for this edition)

Topic Descriptions

A1. Influence and counterinfluence

Topic area: Compete and Win for the Nation

Influence and counterinfluence are both conceptual and operational for Special Operations Forces (SOF). At the conceptual level, the Joint Concept for Human Aspects of Military Operations (HAMO) encourages the force to gain deep appreciation about the worldviews, identities, social networks, relationships, and concepts of time associated with different population groups. To a large extent, this requires a high degree of social science capability and new mechanisms for blending HAMO analysis with operational and strategic objectives in competition. Operationally, influence and counterinfluence are achieved through a multitude of activities, some of which fall under the purview of SOF and others under larger U.S. Government structures. In SOF vernacular, the effects might be achieved through non-kinetic toolsets, strategic messaging, trust building, and multiplatform information operations. What questions must SOF contend with in the contemporary and future operating environment to gain

advantage in the future competitive space? What are the methodological/scientific solutions within the influence space to help determine outcomes? How can SOF influence/counterinfluence? How do SOF identify intentions and objectives? What means/tools are needed to persuade others to modify their behavior? How important is understanding others' sense of identity? How can SOF influence military/security force personnel in rogue states to weaken their commitment to protection of the regime? Does doctrine and Military Information Support Operations tactics, techniques, and procedures (TTPs), authorities, etc. need fundamental changes to reflect today's faster, more interconnected information environment? What are the intentions and objectives of our counterpart? How has our counterpart's sense of identity developed? How could we modify their behavior? What tools are effective in modifying their behavior? How are influence/counterinfluence operations directed against states different than those that are directed against non-state political actors i.e. rebel groups, violent extremist organizations (VEOs)?

A2. Optimizing SOF for the Future Operating Environment (FOE)
Topic area: Preserve and Grow Readiness

The FOE will be characterized by peer, near-peer, and non-state competitors, with technologically advanced threats, ubiquitous surveillance, artificial intelligence (AI)-enabled battle networks, an accelerating rate of change, globally scaled and interconnected information, and the increasing relevance of people and populations in competition and conflict. SOF requires new operating concepts and associated capabilities to confront this broad range of anticipated future security challenges. In this increasingly complex environment characterized by exponential advances in technology, shifting global order, and hyper-enabled adversaries, SOF must correspondingly optimize to confront these challenges. What enhancements in competency, cognition, performance, and total health create SOF capable of navigating the changing human terrain and new technology landscapes of the future? What competencies (i.e. observable and measurable knowledge, skills, abilities, and behaviors) will provide: the ability to operate in a digital technology saturated environment; robust political/historical awareness, increased language, regional

expertise, cultural proficiency, and the ability to effectively interact across the total range of physical and virtual populations and subgroups; the ability of future SOF "digital natives" (lacking analog skillsets) to operate in austere or low-tech environments using nontechnical means? What tools and techniques are required to improve working memory, language comprehension, calculating, reasoning, problem-solving, and decision-making? How can SOF recruit from nontraditional populations? What are the SOF educational needs to train soldiers to think critically in an analog environment? How does United States Special Operations Command (USSOCOM) create the requisite diverse teams necessary to address the complex problems of the future? How does USSOCOM recruit, train, and retain these highly specialized warriors? What parameters or indicators are necessary? What are the leadership impacts (good and bad) and how can leadership better understand these factors to optimize SOF performance?

A3. Strategic sabotage: Historical lessons with future potential
Topic area: Innovate for Future Threats

Defined as deliberate action aimed at weakening a polity through subversion, obstruction, disruption or destruction, sabotage has proven to be a powerful force down through history. Strategic sabotage focuses on undermining confidence in the highest levels of adversaries' leadership's policies, capabilities, and/or actions through activities that expose and exploit those vulnerabilities. Concepts underlying many of history's most successful sabotage efforts may well be as applicable today as they were in the past … perhaps even more so given the multiple domains—land, air, maritime, cyber, space, and social media—and range of military activities across which sabotage can be exploited today. This topic proposes research to: (1) select exemplars from recent (18th century forward) history of both successful and unsuccessful strategic sabotage; (2) develop a metric (to include strategic objective, why/how objective was selected; Diplomatic, Information, Military, and Economic roles and implications) and evaluate reasons for success or failure of each activity; (3) key lessons learned; and (4) potential applicability to future SOF, joint, Department of Defense (DOD) and/or whole-of-government actions.

Research should not be constrained to U.S. or purely military actions. Note: SOF has leveraged "lessons learned" to great advantage over the decades. SOF is increasingly viewed—and employed—for strategic effect. Leveraging relevant strategic sabotage "lessons learned," SOF can expand and strengthen options and capabilities it affords the national command authorities, Combatant Commands, and the Services. If the goal of sabotage is to weaken a polity, what forms of sabotage could be most effective at this? Conversely, what forms of sabotage carry the greatest risk? In the Cold War, how effective were strategic sabotage operations in great power competition? Under what conditions were sabotage operations successful? How was success defined? How did sabotage operations fold into and affect broader operations, and vice versa? What were the unforeseen consequences?

A4. Measuring the effectiveness of SOF campaigning: Converting tactical effects into strategic impacts

Topic area: Compete and Win for the Nation

Determine how the United States can achieve strategic success against violent Islamic terrorists and other VEOs that threaten important national interests, and determine how USSOCOM can better connect their tactical successes to the nation's strategic goals. Unclassified captured enemy material (CEM), open-source reporting, and related primary source material have revealed a possible Islamic State of Iraq and Syria (ISIS) transgenerational "long game" associated with females and minor children. Specifically, "cubs of the caliphate" and associated programs designed to weaponize minor children, in addition to the use of women to radicalize, indoctrinate, manage, and activate these youthful combatants are consistent with a transgenerational "long game" created to outlast the current fight. The complex, multifocal nature of this ISIS line of effort will require data-informed approaches to effectively characterize, understand, and disrupt the recruiting, radicalization, and training pipeline. How do SOF use its unique access, insight, and understanding to contribute to the knowledge base, enabling the military to inform and advise in support of meaningful, sustainable, effective, and lawful solutions to a transgenerational fight? How will SOF protect the force from

physical, as well as legal, ethical, and moral harm, particularly as it relates to youthful combatants? What are the associated implications for the rules of engagement? How do SOF translate their unique access, insight, and understanding to inform options, particularly as it relates to leveraging unclassified CEM in support of data-informed, non-kinetic opportunities for disruption? What are the indicators or variables that SOF should monitor for transgenerational VEO development? What are the lessons learned from other countries who are monitoring for VEO behaviors and are reintegration programs working?

A5. SOF FOE 2035

Topic area: Innovate for Future Threats

The environment in which SOF operate in 2035 will be complex and characterized by global competition for influence, resources, and technology. This environment will manifest in evolving geopolitics, resurgent nationalism, changing demographics, rapid technological advancement, and unease resulting in global tension and competition for resources. The pace of disruptive technological innovation coupled with globally integrated populations will likely involve "black swan" events presenting strategic and operational challenges and opportunities. Rapid change and innovation will be the new normal and development cycles will shift to weeks and months instead of years. The pace of change in multiple fields is analogous to that of Moore's law used to predict integrated circuit performance—performance doubling every 18 months. The impact is that some areas of "science fiction" today will be reality by 2035. What is the SOF role in addressing the reemergence of long-term, strategic competition by revisionist powers, China and Russia, who want to shape the world consistent with their authoritarian model? How will rogue regimes North Korea and Iran destabilize regions through their pursuit of nuclear weapons or sponsorship of terrorism? How will non-state actors threaten the security environment with increasingly sophisticated capabilities? Terrorists, transnational criminal organizations, cyber hackers, and other malicious non-state actors will continue to seek to restore an Islamic Caliphate across the Middle East, Africa, and into Asia. U.S. national security priorities confront threats from

Russia, China, North Korea, and Iran. Will this serve as an advantage for VEO reemergence? Assume Salafi-jihadist networks leverage new technologies e.g. AI, encrypted communications, virtual currencies, the Dark Web, offensive cyber capabilities, armed drones, and weapons of mass destruction to facilitate propaganda, raise funds, recruit new members, conduct disinformation campaigns, and perpetrate attacks. The joint force will continue to prepare for long-term strategic competition from great power competitors, rogue regimes, and VEOs. U.S. SOF must be ready to meet future challenges and opportunities, be fully prepared for foreseeable threats, and organized to maintain flexibility, adaptability, agility, and resiliency to react to unforeseen threats. U.S. SOF will serve as the force of either first or last resort. SOF personnel will have to be as physically dominant as they are now, but will also have to be cognitively and culturally resilient to operate in the complex FOE. How will SOF conduct operations against a peer-to-peer competitor when all the technological and professional advantages that they have held to date against less capable opponents no longer exist? What implications does this have for training and education?

A6. Resistance/counter-resistance operations

Topic area: Advance Partnerships

What is it that a resistance organization should seek to accomplish under occupation and how? If the resistance is in a small ally, such as a Baltic nation, and we have an agreement with them to protect their sovereignty (North Atlantic Treaty Organization [NATO] treaty)—how does that affect the resistance operations? If we are ramping up our conventional forces to restore their territorial sovereignty, what role does resistance play? If they perceive that the U.S. and its allies are moving too slowly, what are the consequences? As forcible entry occurs, then what sort of operations should the resistance be undertaking? How do they keep their people motivated to resist? What political problems could they present to us if the population is simply awaiting NATO/U.S. force arrival who will be placing themselves at risk for a passive or even accepting population? Resistance is tied with resilience including the psychological aspects. Conversely, what would a nation like Russia or China do to reduce the effectiveness of

resistance to them? What are their options (pre-crisis and post occupation)? Destroying a small town such as in the mid-twentieth century is likely not an option (worldwide communications and public opinion development) unless they want local and international opposition to them to increase and become more justified to ousting them. So, what other options do they have (e.g. 'accidental' deaths, loss of power, food shortages; all blamed on logistical difficulties, terrorists or criminals). What and how effective is present Russian and Chinese counterinsurgency doctrine (e.g. Chechnya, Ukraine, Uighur region)?

A7. Alliance dynamics

Topic area: Advance Partnerships

The Joint Concept for Integrated Campaigning explicitly recognizes the importance of achieving objectives though integrated military operations and aligned activities with interagency and other partners. The resumption of a multipolar environment suggests that alliance dynamics will be increasingly important to campaigning for advantage in a competitive international environment. As the United States moves beyond its unipolar moment, it is important to revisit how governments balance their national interests versus alliance interests. What makes alliances durable as entities? What behaviors are necessary to elevate the value to alliances in government perception? What operational and strategic issues do allied SOF face moving from a counterterrorism to a near peer focus? How do alliance concepts move beyond states to reflect the value of non-state and commercial actors? What are the attitudes, concepts, and behaviors that contribute to authentic engagement and durable associations? How do SOF leverage its global network for great power competition with China and Russia? Where can SOF support allies and partners in the pursuit of their interests to increase U.S. competition with Russia and China in the future? How does the U.S. balance national interest and the collective good? Are there any allies/partners SOF should leverage in the future? How can SOF build credibility with potential partners? How can SOF become a more attractive partner to be able to build alliances when required/needed?

A8. Maneuver paradigms for the 21st century

Topic area: Compete and Win for the Nation

In an era of unrelenting competition, U.S. systems and thinking (for the most part) still center on a binary peace-war paradigm. Adversaries are now waging a global multi-domain campaign against the United States. How might SOF, as part of the joint force, better conduct near continuous and asymmetric maneuvers across multiple domains and battlefield frames, through time, at all levels of war, globally, and in some cases simultaneously, to deter and defeat adversary strategies below the level of armed conflict, and when necessary, fight and win wars against increasingly capable peer and near-peer rivals? How might geographic combatant commands be more flexible to deal with what are increasingly global vice regional threats? Current tactical, operational, and strategic models are not effective against an adversary that has an integrated strategy across all levels of war. How might component commands, which are currently Title 10-focused (organize, man, train, equip), vice warfighting headquarters, better support the Theater Special Operations Commands? Fully integrated, cross-functional, interagency teams are imperative to address challenges in the competition space. Could a global memorandum of agreement better facilitate co-deployment (and employment) of U.S. government agencies? What are some required changes in training and education to create "21st Century Maneuverists?" Does maneuver, as defined, need to be expanded to consider physical and information power, as well as cyber and electromagnetic capabilities? How might we garner a clearer understanding of adversary actions and underlying logic to maneuver those adversaries into unfavorable positions in order to set the conditions that dictate the terms of the next move? What environmental variables have changed since the last era of potential great power conflict (i.e. the Cold War)? How might theories of deterrence and compellence inform SOF maneuver paradigms? What is the emerging role of SOF in great power competition below the level of armed conflict? Should an actual hot war break out, what mission sets should SOF prioritize?

A9. Evolution of SOF culture for the FOE

Topic area: Preserve and Grow Readiness

Special operations are special because their success depends on long-term relationships with indigenous forces and populations and knowledge of the cultural, societal, economic, and political environments in which they occur. Special operations improve a nation's security capabilities, foster or counter insurgencies, dismantle terrorist networks, counter weapons of mass destruction, and address other irregular adversaries. The greater the environmental knowledge and extent of relationships, the more likely the outcome will be successful. This, more than any other single factor, defines the nature of special operations. The nature of special operations is further defined by the SOF who conduct them. SOF are carefully selected for physical excellence, maturity, judgment, adaptability, and ability to make good decisions under pressure. SOF are trained in languages and culture; special operations TTPs; and provided with equipment designed or modified for special operations. SOF are able to conduct a wide range of missions—often at high risk—and in a clandestine or low visibility mode when required. How can SOF transform or innovate, focus on recruiting and retaining new people, and enabling them with the proper equipment while at the same time increasing adaptability? How must the recruitment and retention culture of SOF change to attract and incorporate more women and "Generation Z?" What is the SOF ethos that guides ethical and moral behavior of the enterprise? How must SOF culture change to recruit and retain individuals from different backgrounds with diverse perspectives and a wide range of skill sets?

A10. Future SOF global employment structure and organization

Topic area: Innovate for Future Threats

What innovative organizational structures and deployment models can best enable SOF employment against global lines of effort, increase the speed and quality of decision-making, and reduce wasted capacity under current Unified Command Plan and deploy-for-presence models? How will SOF continue to maintain the global intelligence collection posture and picture as we shift from a Deploy-for-Presence to a Deploy-for-Purpose model? Additionally, what is the

feasibility for SOF to virtualize a portion of its core missions to meet denied area and dwell time concerns? Can SOF scale and expand to include more allies and partners? Which allies and partners present the most desirable qualities for SOF scalability? Are current SOF organizations fit for purpose in the future security environment?

A11. Disruptive innovation efforts

Topic area: Innovate for Future Threats

Technology is accelerating at a rate previously unseen in human history. What are the emerging and disruptive technologies most concerning to SOF operations? Disruptive innovation includes widespread proliferation of AI; big data for predictive analysis; machine learning technology; new biotechnologies; global shift to advanced information and communications technologies; and advances in manufacturing (3D printing). How will SOF take advantage of these technologies and how will SOF counter their adversary's use? What resources—DOD innovation labs, research and development labs, nontraditional defense contractors, etc.—can SOF leverage better to implement innovative technologies into the warfighter? Within the "BRINE" (biotechnology, robotics, information, nano, energy) areas, what are the most potentially disrupting innovations of the future? How does human augmentation/enhancement, including new genetic technologies, align with the core values of SOF? What are the implications of fighting adversaries that use advanced human augmentation/enhancement techniques? In addition, advances in the neurological sciences has increasingly enabled science and technology that enables controlled effects on human and animal brains. Do these neuro weapons create a new weapon of mass destruction, or possibly a new weapon of mass disruption? What are some of the commercial off-the-shelf technologies available to terrorists and other adversaries and how could those technologies be employed in a destructive or disruptive way? What risk do neuro weapons pose to SOF? Does that risk include possible long-term impairment of personnel? What must be done to improve detection and mitigation of neuro threats? Do current rehabilitative programs effectively resolve effects of neuro attacks on the human brain and sensory organs?

A12. SOF ethos and ethics

Topic area: Strengthen our Force and Family

There have been several widely-publicized incidents that highlight ethical lapses (criminal activity) among some members of the SOF community. These incidents sparked the USSOCOM Commander's concern and resulted in a memorandum from the Commander to the entire command. Studies have evaluated unit cohesion in small teams and found that it can foster groupthink, impede information flow with external players, etc. However, there are very few studies focused specifically on SOF or with an application to small team SOF units. Ethical lapses have implications for SOF culture, and are particularly relevant as team diversity increases. Do these recent events highlight a force-wide problem? Compared to the past, are the number of occurrences of these problems increasing? Does modern media and technology amplify the negative perceptions caused by these types of events? If there is a problem, what may be underlying factors that would contribute to adverse behaviors and what are effective ways to message the force to create awareness and modify behaviors? How do the occurrences among USSOCOM forces compare to the Services? What is the negative side to the SOF brotherhood and unit cohesion? What are the specific statistical trends in terms of ethical misbehaviors?

Revised topic A12 research questions for this edition

With the publication of the USSOCOM Comprehensive Review (CR) of SOF Culture and Ethics in January 2020, there is a rich source of new research questions and topics. In particular, the CR highlighted the importance of continuing education to SOF. Most broadly asking; what role does education have in how SOF culture and ethics are developed and reinforced? Closely associated with considerations about the role of education is the corollary that SOF requires operators and enablers who are lifelong learners. What does it mean to be a "lifelong learner?" More specifically, what should operators and enablers be learning? When should it be taught? Who should teach it? Are there unique areas for each to focus on? The CR also highlighted unique aspects of SOF culture. In particular, SOF operators may have difficulty transitioning from combat environments to their home stations. Dwell time at home station is designed to provide each of them

with a mental, emotional, and physical break from combat and give them time with their families. What are those difficulties? How can they be addressed at the organizational and individual levels? What tools might be useful to help SOF operators more readily make these transitions? Culturally, role models are also important to SOF. The choice of a role model is an important, personal choice. What should SOF operators look when choosing role models? What are the qualities of ideal team leaders and team sergeants?

B. Compete and Win for the Nation

Topic Titles

B1. Innovative uses of the technology environment by state and non-state competitors
B2. Intelligence, surveillance, and reconnaissance (ISR) next
B3. Anticipating the unintended consequences in campaigning
B4. Resiliency in and among sanctioned states
B5. Global mineral market 2030 and beyond
B6. Possibilities for terrestrial ISR platforms
B7. The operational and political implications of "dense urban terrain"

Topics added for this revision

B8. Reframing resistance in the era of great power competition
B9. Observing resistance from the inside out—learning from domestic experiences
B10. Naval Special Warfare support to U.S. Government attribution operations in hyper-challenging environments
B11. The pandemic challenge: SOF roles and impact
B12. Great power competition and the world

Topic Descriptions

B1. Innovative uses of the technology environment by state and non-state competitors

Technology is advancing at an extraordinary pace. This provides resource-constrained states, and terrorist and criminal elements, the ability to approximate military capabilities previously available only to advanced militaries. It will be increasingly important for Special Operations Forces (SOF) to anticipate how competitors might use available technology for the purposes of evasion, communicating, attacking, recruiting, moving resources, and denying or degrading partner and allied capabilities. How might the SOF enterprise generate ideas on how technology can be employed either in support of or against its forces and missions? Are there specific analytical

capabilities that should be developed and remain internal to the SOF enterprise? How might the SOF enterprise engage those people and organizations at the cutting edge of technology development to imagine potential military applications? How might the acquisition process be streamlined to keep pace with new technological capabilities available to others on the open market?

B2. Intelligence, surveillance, and reconnaissance (ISR) next

The opportunity for obtaining, analyzing, and utilizing information voluntarily disseminated in the public domain is improving as people's lives become increasingly intertwined with digital devices. Moreover, people are wittingly or unwittingly self-profiling, volunteering their biometric data, and establishing patterns of life that can be potentially exposed with or without their permission (user agreements vs. hacking). This modern reality presents the opportunity for new ways to conceive of ISR at multiple levels. For example, to what extent can social media analysis provide verifiable and reliable data for measuring preferences and attitudes at the operational to strategic levels? What are the weaknesses inherent with relying on social media as an indicator? What kinds of sociocultural analysis are necessary prior to utilizing social media analytics in order to make sense of the data? At the operational to tactical levels, how might facial recognition and other biometric indicators be captured and potentially utilized for ISR purposes? What are the vulnerabilities in digital device biometrics that could expose SOF to potential harm? What evolving cyber-enabled experiences might be utilized to gauge sentiments or serve as useful indicators of measures of performance and measures of effect during SOF engagement strategies? What can the Internet of Things provide in terms of sensing patterns, trends, concerns, and potential crises? What are its limitations? How might artificial intelligence and machine learning be leveraged in the performance of ISR in this way?

B3. Anticipating the unintended in campaigning

By issuing the Joint Concept for Integrated Campaigning, the Joint Staff has begun the process of reorienting the military away from linear planning based on end states and toward persistent, proactive

intervention in nonlinear, social systems. The use of the term "campaigning" is purposeful in that it requires a cognitive shift from contingency plans to one comfortable with perpetually seeking advantage without a clear idea of how the future will unfold. Unanticipated consequences are a reality in military operations, but are magnified in social settings by the multitude of unknown variables impacting a population and its perception of events. Many questions arise as the joint force moves towards a campaigning mindset, especially in the context of competition short of armed conflict. Is there a requirement to develop in operators an understanding of how mission objectives reach beyond the tactical mission and nest within a larger campaign or strategy? What mental models in military education need to be adapted to facilitate campaigning attitudes and activities? How does one determine if a campaign is moving toward a desired or acceptable future? How might others with important insight and perspective, such as allies, interagency personnel, partner nations, scholars, and others contribute to campaigning design and assessment? How do we inculcate the necessity for planners to consider all sociopolitical-economic considerations in the planning process (as factors as important as the tactical plan)? What role does scenario planning play in a campaigning framework?

B4. Resiliency in and among sanctioned states

Economic sanctions are a crucial element of statecraft, especially when tensions do not rise to the level of armed conflict. However, the last 30 years has demonstrated that a number of the government targets of U.S. sanctions, notably Iran, Venezuela, Cuba, North Korea, and Iraq under Saddam Hussein, have been able to withstand economic pressure, persist, and sometimes even improve their strategic position. This is of particular interest for SOF since many of these regimes are linked to terrorism and weapons of mass destruction for which United States Special Operations Command (USSOCOM) has coordinating authority. Moreover, these governments are reported to have relationships with one another and possibly other types of transregional threat networks. Given the history it is fair to ask, are sanctioned states capable of creating a sustainable, alternate regime of international trade of their own given their own indigenous natural

resources? What foreign assistance is critical for sanctioned states to operate outside the existing international system of finance and trade? What are the practical and institutional barriers they face if they have such an intention? What are sanctioned states' most effective means for exploiting loopholes in the existing systems of international finance and trade? What role might crypto-currency play in sanction busting by sanctioned governments? How might transregional threat networks adapt to or play a role in sanctions busting, and what vulnerabilities do they face in doing so? From an integrated campaigning approach, what might the role of SOF be in combatting such activity given the current distribution of authorities, permissions, capabilities, and access across the U.S. Government?

B5. Global mineral market 2030 and beyond

Rare earth metals and other identified strategic materials are becoming increasingly important to statecraft in that the digitization of economies exposes countries to dependency on a very small number of providers, China among them. The Joint Concept for Integrated Campaigning asserts that, in the era of great power competition, integrating military and aligning interagency and partner nation capabilities is essential for progressively seeking strategic advantage to prevent conflict. With rare Earth metals concentrated mainly in one rising global power, what might the role of SOF be from the perspective of statecraft or gray zone politics? Might SOF have a crucial diplomatic role to play to mitigate the possibility of rare Earth metals or other precious commodities from being used as a strategic lever in negotiations given their access and placement? Alternatively, rare Earth metals are also found in many countries riven by internal conflict? What are the implications of threat networks gaining control over such commodities? How might their position as a provider impact their ability to conduct external operations given the demand for the commodity? Are there any indications that threat networks have such intentions?

B6. Possibilities for terrestrial ISR platforms

Perspective matters and ISR accomplished from overhead assets are inherently limited in the perspective they can bring. There are times

when seeing and sensing the environment from the ground is crucial for situation awareness. The rapid improvement in mobile sensor platforms, most visibly represented by technology used for the Mars rovers, suggests that new ISR platforms capable of landing can be developed. What SOF core activities can be supported with existing technologies and which mission sets should be given priority given the state of technology? What areas of emphasis should USSOCOM establish given trends in great power competition? How might the data, and platform itself be recovered in a way that protects the technology? What are the moral, legal, and ethical concerns associated with conceiving of ISR in this way?

B7. The operational and political implications of "dense urban terrain"

Demographers expect that population flows to urban and suburban areas will continue through 2050 leading to increasingly dense urban environments. The operating implications for this whether in the context of large scale conventional operations, counterinsurgency or counterterrorism, or humanitarian assistance and disaster relief are profound. On the one hand, large scale attacks on urban centers with conventional weapons or weapons of mass destruction could lead to outward migration flows that choke major transportation arteries and impede military mobilization and response. On the other hand, urbanization leads to political transformation in societies over time, which might lead to insurgent or terrorist operations against friendly governments. In other cases, SOF could be called upon to provide humanitarian relief to city-level actors due to host government incapacity after a natural disaster. In each of these cases, SOF will require concepts for operating in and analyzing the social reality of dense urban terrain. How should SOF posture itself for operations across multiple domains in dense urban terrain? Are there lessons to be learned from current conflicts or operations in such environments? How do political dynamics change in a country as urbanization occurs? Are there patterns associated with political change? What are the best practices for dealing with humanitarian crises and migration flows in dense urban environments? How can neighborhood and/or community ecosystems be recognized and assessed?

How might different sensor technologies, such as social media, small unmanned aerial systems, and networks of nongovernmental organizations participate as a system for addressing challenges in these environments? What modeling tools are available to test potential crisis scenarios?

B8. Reframing resistance in the era of great power competition

Great power competition and what resistance movements might look like against China and Russia is much different, nuanced, and less far-reaching than what is currently defined as "support to a resistance movement." As an example, the 2017 National Security Strategy indicates that both China and Russia are advancing their national interests by "targeting their investments in the developing world to expand influence and gain competitive advantages against the United States. China is investing billions of dollars in infrastructure across the globe. Russia, too, projects its influence economically, through the control of key energy and other infrastructure throughout parts of Europe and Central Asia."

How can the U.S. disrupt/deter Chinese and Russian economic expansion? There are several potential courses of action. Resistance against China's activities abroad might focus on their contracts with other countries such as those for ports and resources. Should the U.S. help those countries negotiate a fair deal? Can the U.S. use name-and-shame as a technique against a culture (China) that embraces honor? Since Russia depends on oil and natural gas for existence, resistance against Russia may be to encourage/support green energy in Europe—support an energy independent Europe. Should the U.S. play China against Russia?

As an example: Why is China getting rich and not Russia? The point is, this does not fall within the accepted definition of "resistance movement" but it does potentially deter China and Russia from attaining their national interests and objectives. Does the U.S. need to reframe how it sees "resistance" in this era of great power competition to include actions that deter or disrupt U.S. adversaries from attaining national objectives and not limit it to resistance movements within their borders?

B9. Observing resistance from the inside out—learning from domestic experiences

A resistance movement is defined in Joint Publication 3-05, Special Operations, as "An organized effort by some portion of the civil population of a country to resist the legally established government or an occupying power and to disrupt civil order and stability." Most professional military education writings on resistance movements have looked at those events from an "other-than-U.S. domestic" perspective. As an example, case studies abound on the Northern Alliance in Afghanistan, the *OTPOR* movement in Serbia, the "Color" movements—Rose in Georgia, Orange in the Ukraine and the Tulip in Kyrgyzstan—those in South and Central America, etc. However, what can the U.S. military learn from its own experiences? They range from the racial tensions in U.S. in the 1960s, to the Tea Party movement during the last decade, to something as nuanced and professional as the Russia Today (RT) network broadcasted within the United States. Rather than viewing resistance movements from a professional military perspective focusing on other countries, what can the U.S. learn about resistance movements from a social scientist perspective, looking introspectively from the inside out—from domestic experiences?

B10. Naval Special Warfare support to U.S. Government attribution operations in hyper-challenging environments

Naval Special Warfare (NSW) has unique and highly-specialized capabilities with supremacy for special operations, actions, and activities in the maritime environment. In the age of hybrid-malign activities from both state and nonstate actors/aggressors, and in the areas of geo-political and military contention playing out purposely under the threshold of armed conflict—and much of it in the littorals—NSW must be positioned, poised, and prepared to conduct attribution operations in hyper-challenging environs others either will not go and/or cannot go (i.e., SOF activities in hostile, non-permissive, extreme conditions, politically/diplomatically sensitive and geo-politically contested). Attribution operations can span the spectrum from detection, identification, tracking, surveillance, reporting, dissuading, deterring, and defeating.

Much of the hybrid-malign activities are now—and ostensibly well into the future—emerging more prominently in the decision-making matrices of the National Command Authority. Specifically, NSW must align its building partner capacity more adroitly and effectively with theater special operations commands, geographic combatant commands, and allied plans and capabilities. It must lever organizations and institutions (e.g., the Naval Small Craft Instruction and Technical Training School, Joint Special Operations University) that can better assist in the planning, equipping, training, synchronizing, directing, and execution of partner nation (PN) forces. These forces often are more attuned culturally, topographically, and sociospatially, and could better maneuver, operate, and execute in these contested spaces amongst and against belligerent hybrid-maligned actors on behalf of U.S. Government and allied and PN interests.

B11. The pandemic challenge: SOF roles and impact

Pandemics present challenges to all nations of the world, but some might consider the malign opportunities the pandemic presents as well. How might SOF be utilized to counter such actions? How might foreign actors use the pandemic against the U.S., allies, and interests? This can range from disinformation campaigns and conspiracy theories to engaging in kinetic action in vulnerable areas, deeming the West too preoccupied to intervene. What actions, operations, and activities might SOF engage in to counter and even deter such behavior?

B12. Great power competition and the world

As America's foreign policy stance of great power competition becomes entrenched, how is it evolving? From the initial discussions surrounding the perspective prior to its inclusion in the 2017 National Security Strategy, to its fuller expression in the 2018 National Defense Strategy, how are different departments and agencies of the government defining it and its component parts? Moreover, is it simply a rhetorical device of diplomacy, or is it approaching a U.S. grand strategy? Finally, how is the rest of the world reacting to the concept? Is it truly a global concept, or is it solely an American perspective?

C. Preserve and Grow Readiness

Topic Titles

C1. Prioritizing cyberspace capabilities to support United States Special Operations Command (USSOCOM) core activities
C2. Cyber support to tactical SOF Operations—tactical organization
C3. Medic skill set sustainment
C4. Cyber talent management
C5. Measuring and reporting analytic health
C6. Compare and contrast simulation methodologies for manpower and personnel policy management

Topics added for this revision

C7. Collaboration with interagency partners in great power competition: Before, during, and after hostilities
C8. Requirement for Russian language capabilities
C9. In an effort to divest SOF from mission overload, how does SOF distinguish between asymmetric and hybrid threats?
C10. What must members of the SOF community know and understand about AI and big data? What are the requirements based on specialty, rank, leadership level, etc.?
C11. How can SOF combine multiple data sets and use AI data analytical approaches to support decisions on how the command shapes and trains its people?
C12. How can the United States Naval Special Warfare Command (NAVSPECWARCOM) introduce data standardization in order to increase the effectiveness of after action reviews (AARs)?Topic Descriptions

Topic Descriptions

C1. Prioritizing cyberspace capabilities to support United States Special Operations Command (USSOCOM) core activities
Whereas a few years ago "cyber" was not clearly recognized as a major Special Operations Forces (SOF) concern, concepts of cyber-enabled

SOF and SOF-enabled cyber are becoming regular discussions across the enterprise. In the context of USSOCOM's core activities, how should the enterprise prioritize these activities given the high-demand, low-intensity nature of cyberspace forces and challenges associated with developing cyber capabilities? Which core activities require high degrees of cyber competency and which do not? What are the implications for training and education in career progression? Are USSOCOM forces currently prepared to operate in and through cyberspace for carrying out core activities that demand cyber competency? For which core activities should USSOCOM seek unique tactical capability development and which activities are, perhaps, better suited for broader support from United States Cyber Command? How should USSOCOM move forward and prioritize cyberspace operations in their core activities? What attitudes, behaviors, and skill sets are required for leveraging the system of cyber-related capabilities across the U.S. Government?

C2. Cyber support to tactical SOF operations—Tactical organization
Much like conventional forces, SOF tactical teams can potentially benefit from applying cyber capabilities to their operations. Toward this end, how can SOF better organize to best implement cyber operations capabilities, to include at the official development assistance level? Should a SOF cyber capability be engendered organically (through cross-training) and/or SOF Service- like component to support the joint force? Conversely, should Service organizations instead provide specific cyber augmentation and/or develop their own independent methods (toward a joint solution)? What are the risks and opportunities associated with each of these possibilities?

C3. Medic skill set sustainment
It is unclear how much or how often a special operations combat medic (18D, 68WW1, 38BW4) should be conducting continuing hands-on medical skill sustainment. Current United States Army Special Operations Command 350-29 requires each medic to complete four weeks of Medical Proficiency Training every four years. This may be insufficient considering the depth and breadth of skills a special operations combat medic is responsible to maintain. Objective

evidence is required to establish appropriate skill sustainment intervals. This data will in turn drive command influence and support of dedicated and integrated medical training. A rapidly evolving domain requires more frequent refreshing to ensure that new best practices and associated lessons learned are translated into practice in a timely manner. What best practices are followed in the private sector? How do Emergency Medical Technicians and Registered Nurses maintain proficiency other than working every day? What is their structure for continuing education that can be emulated or adopted? How can USSOCOM overcome the attendant inhibitors such as licensing, credentials, and working in civilian medical institutions?

C4. Cyber talent management

The future operating environment may call for increased cyber capability requirements for SOF. Effective government (i.e., civilian and uniformed military) offensive cyber operators possess a unique skill set that is difficult to obtain, atrophies quickly, and offers lucrative opportunities in the private sector. In order to balance opportunities for members (e.g., promotion, career progression, bonuses) and maintain operational capability, how can the Services and USSOCOM best manage their trained cyber operators? How can the cyber skill set be recorded and tracked? How can it be factored into promotion and career progression? Is the restoration of a system similar to the Army's former specialist track appropriate? Is a warrant officer track appropriate? What can the Department of Defense (DOD) and USSOCOM offer cyber operators that the private sector cannot? Could this specialty reside within SOF reserve components/National Guard, allowing cyber operators to maintain job in the private sector? What cyber skills are required by SOF operators?

C5. Measuring and reporting analytic health

The quality of analysis provided by intelligence support is the direct output of the quality of the skills and abilities of the analysts and the analytic process. How can the SOF enterprise evaluate and measure these skills and abilities and report the findings in a way that is accurate and impactful to both decision makers and the organization? How does SOF incorporate those assessments into further training

for analysts? Once analysts are assessed, if there are issues, what is the next step? How can analysts' skills and abilities be improved in areas such as critical thinking, basic statistics, sampling bias, and vetting and validation of sources and methods?

C6. Compare and contrast simulation methodologies for manpower and personnel policy management

NSW needs a way to effectively evaluate prospective manpower and personnel policy decisions. Decisions that focus too much on one perspective may appear to be optimal, but cause unforeseen issues in the other. For example, is the force capable of producing enough milestone-qualified personnel at a given pay grade given end-strength levels that appear to be adequate? Is a prospective policy change likely to mitigate or exacerbate unintended dynamics such as the one referred to as "flush and fill?" Navy Manpower, Personnel, Training & Education uses a Markov chain Monte Carlo simulation model to determine manning levels from the Echelon I perspective down. NSW has a Discrete Event Simulation model to determine end- strength levels and personnel effects from the Echelon IV perspective up. Which simulation methods should NSW invest in and for what purpose?

C7. Collaboration with interagency partners in great power competition: Before, during, and after hostilities

For the United States to be successful in great power competition, it is necessary that all executive branch agencies work a whole of government approach. Since the 9/11 attacks, the interagency has worked together to address strategic level challenges in the Global War on Terrorism. Is the interagency ready to address the challenges specified in the 2017 National Security Strategy and the 2018 National Defense Strategy as it relates to great power competitors? Once hostilities cease, civil affairs (CA) teams will work to re-establish governmental functions. How ready are civil affairs forces to address these challenges, especially when re-establishing government functions will require a whole-of-government approach? What necessary functions should SOF CA take now to prepare to work with interagency partners? What is a recommended command and control structure

for CA to work with interagency partners, taking into account both conventional and SOF CA forces?

C8. Requirement for Russian language capabilities

As the Soviet Union becomes a dim memory, the sphere of Russian political and military influence seems to be growing while the sphere of Russian cultural influence seems to be shrinking. The diminishing of Russia's cultural force can be seen in the reemergence of local languages such as Ukrainian, Lithuanian, Latvian, Uzbek, Kirghiz, and others. Special Operations Forces do not regularly acquire those language capabilities. Instead they are taught Russian under the assumption that it will be sufficient. Looking to the future, some of the research questions may include the following. How relevant is Russian for U.S. partner operations in Eastern Europe and Central Asia? Which regional languages may be necessary for future partnerships? If Russian remains relevant, which modalities are the most useful (speaking, reading, listening, and/or writing)? Which modalities of the regional language would be most advantageous?

C9. In an effort to divest SOF from mission overload, how do SOF distinguish between asymmetric and hybrid threats?

This topic focuses on breaking down the differences between asymmetric and hybrid threats. A few examples include the following: a bioweapon on a drone: hybrid, an adversary that builds an advanced artificial intelligence (AI) cyber defense capable of detecting and patching vulnerabilities or scouting intrusions in widespread systems: asymmetric, and 9/11 was an example of both. Prioritization of the risks and case study scenarios would be useful for scope management at the senior level of USSOCOM to hone mission sets.

C10. What must members of the SOF community know and understand about Al and big data? What are requirements based on specialty, rank, leadership level, etc.?

SOF must appropriately structure and resource its training enterprise to ensure full-spectrum readiness across the total force. As technology matures, automation, artificial intelligence, and other emerging technologies will help us realize such efficiencies. SOF operate across

a spectrum, ranging from intense, but routinized, armed conflict to great power competition, where operating as small teams in ambiguous environments with potential for great diplomatic and political consequences may be the norm. SOF must expand its expertise in domain integration to meet emerging requirements by developing organic cyber delivery, growing our investment in information operations, and strengthening our operational integration with space assets. These effects will connect to the joint force with resilient networking to ensure SOF are fully integrated with joint all-domain command and control (JADC2), both inside and outside the areas contested by our adversaries.

How does the SOF community implement a comprehensive data strategy and educate the force with a baseline knowledge of data science and artificial intelligence with the aim to:

- Capitalize on structured data to iterate and scale artificial intelligence of all types across the command.
- Modernize and scale information operations and cyberspace best practices throughout the enterprise.
- Employ automation, artificial intelligence, and other emerging technologies to realize efficiencies, maximize the return on our human capital, and gain the advantage over our adversaries.

C11. How can SOF combine multiple data sets and use AI data analytical approaches to support decisions on how the command shapes and trains its people?

Preservation of the Force and Family (POTFF) is an important USSOCOM program designed to implement a holistic approach to force readiness. A key component and success for POTFF will be in the identification and implementation of innovative and valuable solutions across the USSOCOM enterprise. AI is the development and employment of computer-based systems that are able to perform tasks normally performed by humans. A more evolved use of AI is

to enhance human decision-making rather than replace it.[1] To be used by USSOCOM commanders effectively, AI requires relevant inputs from databases that can influence decision making for training, readiness, and human performance optimization. Examples of training databases include but are not limited to human performance programs (i.e., SPEAR and soon to be Smartabase), weapons qualification, airborne status, Databases hosting relevant medical readiness content includes Military Health System Management Analysis and Reporting Tool (M2), e-profile,) etc. Finally, command surveys should logically be included for 360-degree feedback. Once useful databases are identified, graphical user interfaces, or dashboards, can be built in an interactive manner whereby big data is queried and summarized for human interaction and command decision making.

C12. How can the United States Naval Special Warfare Command (NAVSPECWARCOM) introduce data standardization in order to increase the effectiveness of after action reviews (AARs)?
Post-mission there is often reluctance among personnel to complete a comprehensive AAR. There can be perception that there is no immediate return on the originator's time or effort. The originator may also not be aware of issue resolution resulting from their AAR submission. How does the community successfully incentivize active participation in the AAR process? How does the community make completing AARs simpler, more intuitive, and more standardized? Would a bottom-up approach (as opposed to top-down approach) improve the AAR process? Is there a method to generate AARs from other status reports required during mission execution?

1. For a good explanation of AI and decision making, see Colson, Eric, "What AI-Driven Decision Making Looks Like," *Harvard Business Review*, last modified 8 July 2019, https://hbr.org/2019/07/what-ai-driven-decision-making-looks-like.

D. Innovate for Future Threats

Topic Titles

D1. Nontraditional analytic service delivery models
D2. SOF readiness and lethality in support of Multi-Domain Operations (MDO)
D3. Terrorist vulnerability: Privacy vs. convenience
D4. SOF/space/cyber electromagnetic activities (CEMA) nexus
D5. SOF support to U.S. Navy Irregular Warfare (IW) operations in coastal environments
D6. Can there be a universal SOF Common Intelligence Picture (CIP)?
D7. Cyber Measures of Effectiveness (MOEs) and Measures of Performance (MOP)

Topics added for this revision

D8. Supporting resistance movements—Let's not forget the benefits of low-tech!
D9. Machine learning (ML) applications for operational tactics
D10. Artificial Intelligence (AI) augmented social media overwatch and aircraft protect
D11. Operational Art Joint Concepts and cognition

Topic Descriptions

D1. Nontraditional analytic service delivery models

A recent decision to retain captured enemy material in its native unclassified form provides unprecedented opportunities for Special Operations Forces (SOF) to gather insights on key adversaries. In tandem, commercial companies increasingly are turning to nontraditional analytic service delivery models to access data science talent, methods, technology, and related to accomplish similar queries on marketing and sister information. How can captured enemy material be better retained, controlled, disseminated, processed, and employed to support civil legal and criminal prosecution efforts against terrorist organizations and their members? Can (contractually, talent

wise) and should (mission focus) SOF explore the adoption of such service delivery models to review enemy material? What steps can be taken to overcome classification and operations security challenges if/when they arise? Can lessons be learned from commercial entities with respect to evaluation methods of such information?

D2. SOF readiness and lethality in support of Multi-Domain Operations (MDO)

MDO is fundamentally about how U.S. forces will deter and defeat peer adversary strategies below the level of armed conflict and—when necessary—fight and win to overcome rapidly evolving challenges posed by powerful and intelligent peer rivals. MDO allows U.S. forces to outmaneuver peer competitors physically, virtually, and cognitively, applying combined arms in and across all domains. How might SOF increase readiness (via civil affairs (CA), influence operations, security force assistance, etc.) to prevent/deter adversary threats in the MDO realm? How might SOF better harness its suite of lethal capabilities to enhance joint force convergence against MDO? How may SOF enhance penetration and disintegration of enemy anti-access and area denial systems to improve strategic, operational, and tactical maneuver?

D3. Terrorist vulnerability: Privacy vs. convenience

As evidenced in the prominence of social media and information sharing, society is increasingly surrendering privacy protections for technological convenience. This, however, is not limited to friendly actors. Terrorist networks and their members are likewise surrendering privacy as a part of the modern day convenience tradeoff. How could an examination of this ratio better explain terrorist culture and willingness to assume privacy vulnerabilities? Could this information be exploited to expose terror networks and/or locate threats? How are peer competitors knowingly employing this information against the U.S. and its partners? What are the impacts of current and emerging privacy laws and regulations worldwide on potential U.S. counterterrorism efforts?

D4. SOF/space/cyber electromagnetic activities (CEMA) nexus

In a technology-saturated mid-twenty-first century security environment, transparency and reach are of the utmost importance. This reality arguably presents strategic opportunity at the nexus of SOF (knowledge of the people, cultures, and populations, and the ability, if needed, to deliver precision fires), Space (full view of the planet and global access), and CEMA (an understanding of the global pulse through the World Wide Web and social media, as well as the ability to deliver non-kinetic effects via computer networks operations, electronic warfare, and information warfare). How can SOF better leverage existing space and CEMA expertise via recruitment and/or private sector relationships? Would a SOF/Space/CEMA nexus philosophy redefine whole-of-government approaches to security challenges? Does a SOF/Space/CEMA nexus improve joint force ability to maneuver (or create effects) in operational and strategic deep fires areas? What capabilities, if any, do SOF need from United States Cyber Command, U.S. Army Space and Missile Defense Command, the joint force, and/or the Interagency to operate in the Space and CEMA domains? What unique aspects of Space (as a domain) would inform the roles/missions of a Space Service SOF? What is the role of SOF, if any, in defending or controlling critical terrestrial uplinks for friendly and/or adversary weaponry?

D5. SOF support to U.S. Navy Irregular Warfare (IW) operations in coastal environments

In today's challenging, hybrid-malign actor arena, IW remains a critical tool for many Service, joint, and U.S. Government-wide activities. Still, IW and its enabling factors are often misunderstood or poorly appropriated, while belligerent actors wield and maneuver in this space with apparent impunity. Despite its historical prominence addressing IW, surprisingly the U.S. Navy's 2018 Navy Strategy and its Design for Maintaining Maritime Superiority has not a single mention of Naval Special Warfare (NSW) or the role of SOF in IW. To address this gap, what would maritime IW in support of large-scale combat operations of the future look like? Given the growing vulnerabilities of U.S. Navy capital ships to missile attacks, what role can SOF play in the defense of these assets? How are Russia/China/Iran

developing and utilizing maritime IW strategies? What additional partner nation training and education in the maritime environment is needed to execute this function?

D6. Can there be a universal SOF Common Intelligence Picture (CIP)?
At present, SOF units employ theater intelligence data as a primary information source. For future operations, how can SOF develop a CIP template to best support SOF missions, roles, and functions? What would such a template look like? Can artificial intelligence and machine learning be part of such a solution? How can a CIP better prepare deploying units prior to arrival? What types of more focused support can a CIP yield for operators once in theater?

D7. Cyber Measures of Effectiveness (MOEs) and Measures of Performance (MOP)
Unlike traditional kinetic weapons, payloads, and munitions; there is no Joint Munitions Effectiveness Manual (JMEM) for cyberspace operations. For example, Bomb/Battle Damage Assessment (BDA) of cyberspace operations are often minimal, insufficiently codified, or not deliberately built into mission planning at all. How can SOF—via its cyberspace capability— integrate MOEs and MOPs into existing models and products? What model or policy would be needed to empower such integration? What lessons can be learned from peer organization and/or competitor cyber MOE and MOP?

D8. Supporting resistance movements—Don't forget the benefits of low-tech!
Too often, people search for high tech technologies to evolve—or better yet—revolutionize warfare to include resistance movements. However, moments exist when low-tech/or even no-tech solutions are the best, and in some cases, the only answer. An example: The use of Morse Code, which has been dropped from the Special Forces Qualification Course, along with variants for wall/table tapping codes. Another example is the reliance by less sophisticated movements on high frequency radio. Many nation states no longer support the capability, because it's low-tech. However, that is the same reason why resistance movements adopt it, because it is unmonitored.

D9. Machine learning (ML) applications for operational tactics

ML represents a paradigmatic shift in computing. Traditionally, a programmer would write computer code setting the rules needed to process data inputs to get an answer as output. In ML, the computer receives input data as well as the answers expected from the data, and the ML agent needs to produce the rules (see figure below). These rules can then be applied to new data to produce original answers.

If the U.S. military simplifies the traditional process of training Naval Special Warfare (NSW) Operators, with the inputs being tactics (rules, essentially) and operational factors (categorized by the acronym: METT-TC (Mission. Enemy. Terrain & Weather. Troops. Time Available, and Civilian Considerations) and the outputs are operational actions, what might be learned from inputting operational data and METT-TC into ML algorithms? Can ML be used to validate or possibly transform NSW tactics? See figure 2.

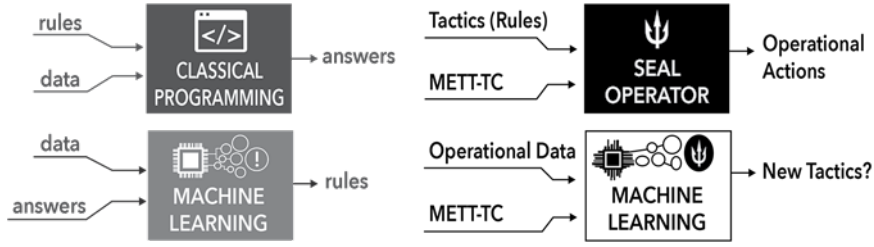

Figure 2. Classical Programming vs. Machine Learning. Source: NSW

D10. Artificial Intelligence (AI) augmented social media overwatch and aircraft protect

In today's world, smart phones and social media are the modern venues for communication. How can artificial intelligence/machine learning automate social media overwatch and hashtag suppression? Is it possible to develop an automated alert for SOF, their vehicles, vessels, and aircraft, and command and control nodes that would provide a warning of threats by enemy action?

D11. Operational Art Joint Concepts (OAJC) and cognition

Between 2016 and 2018, the Joint Chiefs of Staff created three Joint concepts sometimes referred to as the OAJC consisting of the Joint Concept for Human Aspects of Military Operations, the Joint Concept for Operating in the Information Environment, and the Joint Concept for Integrated Campaigning. Each was followed by a Joint Capabilities-Base Assessment. In 2019, the Vice Chairman of the Joint Chiefs of Staff-led Joint Requirements Oversight Council (JROC) approved the Human Aspects of Military Operations (HAMO) and OIE DOTMLPF[2] Change Recommendations (DCRs), validating the associated force development requirements and recommendations.

Since 2015, the U.S. Army Special Operation Command (USASOC) G9 Directorate has been working to expand and integrate the concept of "maneuver" into the cognitive or human dimension of the information environment, and integrate the results into Multi-Domain Operations (MDO). To this end, the USASOC G9 has produced white papers on Cognitive and Expanded Maneuver through adaptation of extant U.S. Army graphical methodologies and tools.

The research should examine the challenges and opportunities for U.S. SOF, conventional forces, or other elements of the U.S. Government interagency community to employ the proposed cognitive/expanded maneuver concept while operating with non-U.S. allies and partners. The research can address the problem either generally or with respect to a specific partner.

Explore a general consideration of the validity and utility of the concept of cognitive/expanded maneuver to the Army and/or joint force. Is the appellation "cognitive" appropriate or would another, such as "informatized" maneuver be preferable? Why or why not? Have any U.S. allies, partners or adversaries explored similar or related concepts? Do our competitors and adversaries employ visualization of informatized maneuver? If so, how? Beginning with a review of the HAMO and OIE JROC Memoranda and DCRs,

2. DOTMLPF review is the due diligence exercised in determining the acceptability, suitability, and feasibility of a proposed force design change. The process proceeds in the order of the letters: doctrine, organization, training, material, leadership and education, personnel, and facilities. Sometimes there is a letter P at the end, representing policy.

determine which solutions/recommendations could best be leveraged to advance USASOC's ideas of cognitive/expanded maneuver. Determine centers of support and resistance (along with rationales) for the concept of cognitive/expanded maneuver within the U.S. Army.

Please send your completed research papers on these topics to the JSOU Department of Strategic Studies.

E. Advance Partnerships

Topic Titles

E1. Special interest aliens and terrorist movement in migrant flows
E2. Amplifying the role of civil affairs (CA) and civil reconnaissance as a SOF sensor
E3. Addressing geographic and interagency transregional threats
E4. Naval Special Warfare (NSW) support to U.S. Government attribution operations in hyper-challenging environments

Topic added for this revision

E5. Operational Art Joint Concepts (OAJC) and operations with allies and partners

Topic Descriptions

E1. Special interest aliens and terrorist movement in migrant flows
Global migration has become a key security issue for many countries due to the ability of terrorist and criminal elements to exploit vulnerabilities in overstretched immigration and humanitarian assistance infrastructure. While the vast majority of migrants are motivated by economic and security concerns with no inherently nefarious intent against the destination country, human smuggling has transformed in recent decades to the point that family and community-based human smugglers cannot conduct business without working at some point with criminal organizations with nefarious intent. Given this reality, how might Special Operations Forces (SOF) distinguish between different types of migrants working with human smugglers and their respective intents? What are the push and pull factors that enable analysts to differentiate groups? Are there reasons other than money that might incentivize a human smuggling operation or criminal organization to work with terrorist or threat networks? To what extent does policy, i.e. securitization of the border or antiquated immigration processes, contribute to the conflation of human smuggling with criminal and terrorist organizations? How might SOF,

law enforcement, justice officials, partner nations, and others create a more efficient integrated campaigning approach for dealing with human smuggling as a complex adaptive system?

E2. Amplifying the role of civil affairs (CA) and civil reconnaissance as a SOF sensor

By issuing the Joint Concept for the Human Aspects of Military Operations (JC-HAMO), the Joint Staff recognized that effective integrated campaigning is not possible without relevant, meaningful, and timely information about the populations subject to U.S. military activity. While counterinsurgency and counterterrorism operations over the last 18 years of conflict have improved many of the database and atmospheric collection capabilities of CA, integrating the information with broader U.S. military and interagency systems remains a challenge. With new trends in great power competition and the persistence of terrorist and threat networks in fragile states, what role might CA play in the future SOF operating environment? How do SOF executives currently interpret the CA capability and how it fits as an asset in integrated campaigning? What are the horizons of interaction between CA and interagency engagement, and how might they be better aligned as a system of population engagement? How might the atmospherics and information obtained during CA operations be better distilled and disseminated to answer questions posed by military and civilian leaders in the spirit of JC-HAMO? What aspects are technical in nature and what aspects are cultural?

E3. Addressing geographic and interagency transregional threats

Ensuring civilian and military alignment is essential to not only the success of SOF, but also the entire Department of Defense (DOD) organization and the interagency at-large. As we collectively prepare for the strategic environment of tomorrow, what should the U.S. Government be doing to ensure it is aligned to tackle these challenges? Is the traditional Geographic Combatant Command (GCC) structure no longer sufficient for both problem and data assessment? Is the rise of the global GCCs with worldwide responsibilities (United States Special Operations Command, United States Transportation Command, United States Strategic Command, etc.) the solution

for transregional friction points? Do interagency roles need to be adjusted to include SOF? How and where do partner nations fit into this equation?

E4. Naval Special Warfare (NSW) support to U.S. Government attribution operations in hyper-challenging environments

Attribution operations span across a spectrum of military activities, ranging from detection, identification, tracking, surveillance, reporting, dissuading, deterring, and defeating. With increasing geopolitical and military conflict now purposely below the threshold of armed conflict, NSW must be prepared to conduct attribution operations where others either will not and/or cannot go (i.e. SOF activities in hostile, non-permissive, extreme conditions, or ones politically/diplomatically sensitive and geopolitically contested). Working with and through partners, how can NSW better align its building partnership capacity to better assist in the planning, equipping, training, synchronizing, directing and execution of partner nation forces? What capabilities would enable NSW to be more effective at combating maligned actors in littoral regions in particular? What case studies of maritime hybrid warfare can be used to prepare for future ones? What legal authorities (such as the United Nations Convention on the Law of the Sea) constrain/expand freedom of maneuver for friendly or adversarial forces?

E5. Operational Art Joint Concepts (OAJC) and operations with allies and partners

One of the key (but complex) advantages of the U.S. is its expansive network of allies and partners. Between 2016 and 2018 three Joint Chiefs of Staff joint concepts were created, sometimes referred to as the OAJC. The three consist of the Joint Concept for Human Aspects of Military Operations (JC-HAMO), the Joint Concept for Operating in the Information Environment, and the Joint Concept for Integrated Campaigning. A key theme of each of the OAJCs is working with the optimal range of joint, interagency, intergovernmental, and multinational (i.e., interorganizational) partners. Such multinational entities can include allies, coalition members, and other partners as circumstances and interests dictate. The research should examine

the challenges and opportunities for U.S. SOF, conventional forces, or other elements of the U.S. Government interagency community operating with non-U.S. allies and partners.

Explain the reason for selection of the specific ally or partner and how it pertains to U.S. national security and/or interests. Where has significant partnering taken place? If partnering is taking place now, where? Where could or should future partnering take place? Discuss specific environments, locations, and venues? In what timeframes has significant partnering taken place? Why should U.S. elements partner with the ally or partner or sub-element? What are the potential alignments of interests and objectives (strategic, operational, or otherwise)? Which U.S. and partner interests may align in the future? What methodologies and physical, virtual, and human modalities that characterize, facilitate, or impede partnering?

F. Strengthen Our Force and Family

Topic Titles

F1. Special Operations Forces (SOF) suicide
F2. Preservation of the Force and Family (POTFF): It's a permanent authority now, but is it working?
F3. Weaponization of neuro science and technology

Topics added for this revision

F4. Effects of Increasing Resiliency
F5. Academia, USSOCOM, and SOF suicide prevention research: Creating increased collaboration

Topic Descriptions

F1. Special Operations Forces (SOF) suicide

The special operations community has been dealing with a high suicide rate for some time. Prolonged combat operations and the very nature of SOF engagements over the last 10–12 years, compound the likelihood of Post-Traumatic Stress Disorder. SOF personnel are conditioned to power through adversity, "tough it out" and "shut it down." This serves operators well in action; it is a devastating reaction to people suffering post war/action problems. How do SOF suicide rates compare to the Services and the civilian sector? What are the factors involved in SOF suicide? What prevention methods can be employed by United States Special Operations Command (USSOCOM) to reduce suicide rates? How can USSOCOM personnel deal with stressors that lead to suicide? What messaging/narrative is effective in preventing suicides? How can the stigma associated with asking for help be reduced or eliminated.

F2. Preservation of the Force and Family (POTFF): It's now a permanent authority, but is it working?

USSOCOM received funding to implement POTFF Family Support Pilot Programs for FY14–16). The 2015 National Defense Authorization

Act extended Section 554 for two additional years (FY17–18) with the following requirements: (1) The identified activity must be one that has a direct and concrete impact on the readiness of SOF; (2) The identified activity is not currently being provided by the individual Services; (3) a cost/benefit analysis for each activity must be conducted; and, (4) outcome measurement standards must be developed to evaluate the success of each family support activity. In 2018, POTFF was codified at 10 U.S.C. Sec. 1788a, and $10 million of MFP-11 was authorized per year. A detailed report is due on 1 March every year beginning in 2019, detailing the programs, assessing their impact on readiness, comparing them to programs provided by the Services, and recommending lessons learned incorporation for other family programs. Has USSOCOM developed POTFF programs tied to readiness? If so, have the programs impacted readiness? How is that measured? What are the results? How have actual costs of the POTFF programs compared to predicted costs? Given the actual numbers, what is the new cost/benefit analysis of such programs? What outcome measurement standards or measures of effectiveness (MOEs) were developed? What are the results of the MOEs? What programs are working, why are they working, and how do we know? What should change about POTFF programming/implementation/MOEs? What should stay the same? How does the dwell ratio impact readiness, mental health, and family unity? Is there an optimal dwell ratio for a more effective force? How are return on investments defined for each program and sub-program? What does success look like?

F3. Weaponization of neuro science and technology

Advances in the neurological sciences has increasingly provided science and technology (S&T) that enables controlled effects on human and animal brains. An example is the suspected sonic attacks in 2016 on some members and family assigned to the U.S. Diplomatic Mission in Havana, Cuba, that expressed itself in symptoms that included ear pain, tinnitus, dizziness, and cognitive issues. Do these neuro weapons create a new weapon of mass destruction, or possibly a new weapon of mass disruption? What are some of the commercial off-the-shelf (COTS) technologies available to terrorists and other adversaries and how could those technologies be employed in a destructive

or disruptive way? What risk do neuro weapons pose to SOF? Does that risk include possible long-term impairment of personnel? What must be done to improve detection and mitigation of neuro threats? Do current rehabilitative programs effectively resolve effects of neuro attacks on the human brain and sensory organs?

F4. Effects of Increasing Resiliency

There are ongoing efforts to increase the resiliency of SOF, such as improving an individual's ability to cope with multiple deployments; deal with uncertain, rapidly changing situations; and handle family-related stress. While these efforts may be beneficial, there are questions. What are we making our personnel more resilient for? Is it more deployments, longer deployments, coping with unreasonable levels of stress, making families better able to deal with increasing difficulties of military life? If those are the reasons, such measures may assist mission accomplishment in the short run, but may ultimately lead to individuals reaching their breaking point at a delayed and higher level, much like making a steam boiler stronger while also increasing the level of pressure needed to activate a pressure relief valve. Nature provides each human being with a built in pressure relief valve that signals when too much sustained stress is encountered. Is adjusting the natural upper level of stress to a higher threshold wise? What are the long-term effects of such increased resiliency?

F5. Academia, USSOCOM, and SOF suicide prevention research: Creating increased collaboration

Existing SOF suicide prevention literature and academic research note USSOCOM's call to increase collaboration with academia. Identified in congressional testimony, previous Joint Special Operations University publications, academic publications, and academia represents a source for both research and resources critical in combating SOF suicide. While much is known with regard to SOF-specific risk factors and barriers to care, much more is yet to be discovered with respect to SOF-specific barriers to care and best practices. What avenues are available for increased collaboration between USSOCOM and academia? How might USSOCOM utilize active choice motivational theory and formalize its stated intent on leveraging academia? What

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university systems provide unique and attainable attributes available for closing performance gaps in POTFF efforts? Which candidate university systems pose a partner of choice amendable to collaboration on the ever-present threat to our force that suicide represents?

Appendix: Acronym List

AAR	after action review
AI	artificial intelligence
CA	civil affairs
CEM	captured enemy material
CEMA	cyber electromagnetic activities
CIP	Common Intelligence Picture
COTS	commercial off-the-shelf
CR	Comprehensive Review
CSO	College of Special Operations
CSS	Center for Strategic Studies
CVEO	Countering Violent Extremist Organizations
CWMD	Countering Weapons of Mass Destruction
DCR	DOTMLPF Change Recommendations
DOD	Department of Defense
DOTMLPF	doctrine, organization, training, material, leadership and education, personnel, and facilities
FOE	Future Operating Environment
GCC	geographic combatant command
HAMO	Human Aspects of Military Operations
ISR	intelligence, surveillance, and reconnaissance
ISIS	Islamic State of Iraq and Syria
IW	irregular warfare
JADC2	joint all-domain command and control

JC-HAMO	Joint Concept for the Human Aspects of Military Operations
JMEM	Joint Munitions Effectiveness Manual
JROC	Joint Requirements Oversight Council
JSOU	Joint Special Operations University
M2	Military Health System Management Analysis and Reporting Tool
MDO	Multi-Domain Operations
METT-TC	Mission, Enemy, Terrain & Weather, Troops, Time Available, and Civilian Considerations)
MISO	Military Information Support Operations
ML	machine learning
MOE	Measures of Effectiveness
MOP	Measures of Performance
NATO	North Atlantic Treaty Organization
NAVSPECWARCOM	United States Naval Special Warfare Command
NSW	Naval Special Warfare
OAJC	Operational Art Joint Concepts
OIE	Operating in the Information Environment
PERSTEMPO	personnel tempo
PME	professional military education
PN	partner nation
POTFF	Preservation of the Force and Family
RT	Russia Today
S&T	science and technology

SOF	Special Operations Forces
TSOC	theater special operations command
USASOC	U.S. Army Special Operations Command
USSOCOM	United States Special Operations Command
VEO	violent extremist organization

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