



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

**ASSESS INTERMEDIATE FORCE CAPABILITIES (IFC) AND
CONCEPT OF OPERATIONS FOR APPLICATION DURING THE
COMPETITION PHASE IN AN ENVIRONMENT OF GREAT
POWER COMPETITION**

by

Dr. Rob Burks & Dr. Jeff Appleget

September 2022

Distribution Statement A: Approved for public release. Distribution is unlimited.

Prepared for: Joint Intermediate Force Capabilities Office. This research is supported by funding from the Naval Postgraduate School, Naval Research Program (PE 0605853N/2098).

NRP Project ID: NPS-22-M342-A

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.

1. REPORT DATE September 2022	2. REPORT TYPE Technical Report	3. DATES COVERED	
		START DATE 10/24/2021	END DATE 09/10/2022
3. TITLE AND SUBTITLE Assess Intermediate Force Capabilities and Concept of Operations for Application During the Competition Phase in an Environment of Great Power Competition			
5a. CONTRACT NUMBER	5b. GRANT NUMBER	5c. PROGRAM ELEMENT NUMBER 0605853N/2098	
5d. PROJECT NUMBER NPS-22-M342-A	5e. TASK NUMBER	5f. WORK UNIT NUMBER	
6. AUTHOR(S) Dr. Robert Burks, COL, USA (Ret.) and Dr. Jeffrey Appleget, COL., USA (Ret.)			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School, Defense Analysis 1 University Circle, Monterey CA 93942			8. PERFORMING ORGANIZATION REPORT NUMBER NPS-DA-22-001
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Joint Intermediate Force Capabilities Office		10. SPONSOR/MONITOR'S ACRONYM(S) NRP, JIFCO	11. SPONSOR/MONITOR'S REPORT NUMBER(S) NPS-DA-22-001; NPS-22-M342-A
12. DISTRIBUTION/AVAILABILITY STATEMENT Distribution Statement A: Approved for public release. Distribution is unlimited			
13. SUPPLEMENTARY NOTES			
14. ABSTRACT Intermediate force capabilities represent a strategic risk mitigation investment that are designed to provide warfighters tools to compete below the level of major armed conflict without losing credibility in the information. This research examines the effects of a set of intermediate force capabilities to assess the strategic impact on a near peer adversary during the competition phase in a 'gray zone' scenario. The effort will seek to gain insights and identify challenges to the employment of IFCs, through several venues, including leveraging defense analysis and operations research department faculty and students and utilizing the NPS warfighting continuum of Joint Campaign Analysis and Wargaming Applications courses. This report describes the process used, without providing the CUI results.			
15. SUBJECT TERMS intermediate force capabilities, IFC, great power competition, GPC, wargaming, joint campaign analysis, gray zone, hybrid warfare, Joint Intermediate Force Capabilities Office, JIFCO			
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	UU
18. NUMBER OF PAGES 54			
19a. NAME OF RESPONSIBLE PERSON Robert Burks			19b. PHONE NUMBER (Include area code) 831.656.2787

THIS PAGE INTENTIONALLY LEFT BLANK

**NAVAL POSTGRADUATE SCHOOL
Monterey, California 93943-5000**

Ann E. Rondeau
President

Scott Gartner
Provost

The report entitled Assess Intermediate Force Capabilities and Concept of Operations for Application During the Competition Phase in an Environment of Great Power Competition was prepared for Joint Intermediate Force Capabilities Office and funded by Naval Postgraduate School, Naval Research Program (PE 0605853N/2098).

Distribution Statement A: Approved for public release. Distribution is unlimited.

This report was prepared by:

Robert Burks
Associate Professor, Defense Analysis

Jeff Appleget
Senior Lecturer, Operations Research

Reviewed by:

Released by:

Dr. Carter Malkasian, Chairman
Defense Analysis

Kevin B. Smith
Vice Provost for Research

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Intermediate force capabilities represent a strategic risk mitigation investment that are designed to provide warfighters tools to compete below the level of major armed conflict without losing credibility in the information. This research examines the effects of a set of intermediate force capabilities to assess the strategic impact on a near peer adversary during the competition phase in a 'gray zone' scenario. The effort seeks to gain insights and identify challenges to the employment of IFCs, through several venues, including leveraging defense analysis and operations research department faculty and students and utilizing the NPS warfighting continuum of Joint Campaign Analysis and Wargaming Applications courses. This report describes the process used, without providing the CUI results.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	1
II. INTRODUCTION.....	4
A. INTERMEDIATE FORCE CAPABILITIES BACKGROUND.....	4
B. RESEARCH SUMMARY	5
C. RESEARCH EXECUTION CONCEPT OF OPERATION.....	5
1. Warfare Innovation Continuum.....	6
2. Maritime Gray Zone Warfare Innovation Workshop	6
3. Joint Campaign Analysis.....	8
4. Wargaming Applications	9
III. IFC SUPPORTED WARGAME CONDUCT AND ANALYSIS	11
A. Problem Statement and Issues.....	11
B. Wargame Description:	11
C. KEY CONSTRAINTS, LIMITATIONS, AND ASSUMPTIONS.....	12
1. Constraints:	12
2. Limitations.....	12
3. Assumptions	12
D. SIGNIFICANT FINDINGS.	13
E. QUANTITATIVE DATA OVERVIEW	13
1. Approach	13
F. RECOMMENDATIONS.....	17
IV. FINDINGS AND RECOMMENDATIONS	20
A. FINDINGS.....	20
1. Issue 1 Findings:.....	20
2. Issue 2 Finding:	20
B. RECOMENDATIONS	20
APPENDIX A: NWSI MARITIME GRAY ZONE WARFARE INNOVATION WORKSHOP AGENDA (9-19 NOV)	21
APPENDIX B: EXECUTIVE SUMMARY OF WARGAME TO JIFCO	24
APPENDIX C FINAL NPS WARGAME REPORT TO JIFCO	30
APPENDIX D “THE GRAY” PLAYER READ AHEADS	43
APPENDIX E SOF INTERMEDIATE FORCE CAPABILITIES USE-CASE	ERROR!
BOOKMARK NOT DEFINED.	
LIST OF REFERENCES	52
INITIAL DISTRIBUTION LIST	54

THIS PAGE INTENTIONALLY LEFT BLANK

I. EXECUTIVE SUMMARY

Project Summary

This research examines the potential effects of a set of intermediate force capabilities (IFC) to assess their strategic impact on a near-peer adversary during the competition phase. The effort attempts to gain insights and identify challenges to the employment of IFCs through several venues. Leveraging our defense analysis and operations research department faculty and students, this project conducted a workshop and analytical wargame to capture challenges and opportunities in a plausible great power competition (GPC) “gray zone” scenario. Wargaming assessed potential concepts for Special Operations Forces (SOF) employment of a set of IFC, emerging IFC concepts and technologies, and their implications for operations across the competition continuum.

The research leveraged the Naval Postgraduate School (NPS) Warfare Innovation Continuum (WIC) and multiple Joint Campaign Analysis (JCA) and Wargaming Applications courses to develop its insights.

The primary focus of the effort was to determine the operational utility of IFCs for SOF to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation. The effort was based on an exchange of ideas between the Joint Intermediate Force Capabilities Office (JIFCO) and NPS researchers to better understand current operational concepts and concerns and identified two critical JIFCO issues for exploration. The research effort identified that IFCs do have the potential to provide utility to SOF to maintain an advantage in the gray zone, while countering lethal conflict and the risk of using IFCs is not significantly more than the risk associated with the current conduct of SOF doctrinal tasks.

Keywords: *intermediate force capabilities, IFC, great power competition, GPC, wargaming, joint campaign analysis, gray zone, hybrid warfare, Joint Intermediate Force Capabilities Office, JIFCO*

Background

Intermediate force capabilities provide options that enable the warfighter to seize or regain the initiative in confrontational situations where potential adversaries appear to be demonstrating malign behavior. In these situations, IFCs may be appropriate, proportional responses to acts that may appear hostile, but fall short of acts or behaviors justifying the use of deadly force. IFCs represent a strategic risk mitigation investment that are designed to provide our warfighters tools to compete below the level of armed conflict without losing credibility in the information space. The lack of IFC puts the United States in a position of having to accept malign behavior to the point which it becomes "fait accompli" for peer adversarial expansionist objectives. IFCs are intrinsic in their ability to dissuade malign behavior and impose costs on near peer adversaries while minimizing collateral damage to infrastructure and permanent injury to personnel.

The wargames utilized in this work familiarized participants and observers with both IFCs and concepts for employment. Under the NPS WIC construct, an NPS student mini-study team, conducted in the JCA course, informed and underpinned the design and conduct of further research into our research's two critical JIFCO issues. This mini-study was followed by an NPS faculty-advised student wargaming team in the Wargaming Applications course, that designed, developed, conducted, and analyzed a wargame leveraging the findings from the mini-study. The wargames modeled SOF utilization of IFCs in a South China Sea scenario to best posture SOF to deter escalation of events.

The overarching objective of this effort was to determine the operational utility of IFCs for SOF to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation.

This effort focused on gaining insights into the following two major issues:

1. What utility do IFCs provide SOF to maintain advantage in the grey zone?
2. What are the risks of using IFCs?

Findings and Conclusions

The full set of insights were provided to the sponsor via the Controlled Unclassified Information (CUI) Wargaming Executive Summary submitted to the sponsor in June, 2022.

Issue 1: IFCs do have the potential to provide utility to SOF to maintain an advantage in the grey zone while countering lethal conflict.

Issue 2: The risk of using IFCs is not significantly more than the risk associated with the current conduct of SOF doctrinal tasks.

Recommendations for Further Research

The intermediate force capabilities and potential employment mechanisms are still nascent concepts that require further research to better understand how the special operations forces (SOF) community can use them to operate more effectively to establish a position of advantage, while preventing the escalation of violence. Essentially, these employment mechanisms will need to mature through continued programs of wargaming and campaign analysis research to best serve joint intermediate force capabilities office and the SOF community.

Acronyms

GPC	great power competition
IFC	intermediate force capabilities
JIFCO	Joint Intermediate Force Capabilities Office
JCA	Joint Campaign Analysis
NPS	Naval Postgraduate School

SOF
WIC

Special Operations Forces
Warfare Innovation Continuum

II. INTRODUCTION

A. INTERMEDIATE FORCE CAPABILITIES BACKGROUND

The Joint Intermediate Force Capabilities Office (JIFCO), located at Marine Corps Base Quantico, Va., is responsible for the management of the Joint Non-Lethal Weapons Program (NLW) and serves as the focal point for technical and programmatic guidance of current and projected joint non-lethal weapons technologies. The Department of Defense defines non-lethal weapons (NLW) as “weapons, devices, and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the target area or environment. NLW are intended to have reversible effects on personnel and materiel.”¹

JIFCO approached the Naval Postgraduate School to help identify and assess a set of intermediate force capabilities (IFCs) and potential concepts of employment operations in order to gain a desired strategic effect against a great power competitor during the competition phase of the spectrum of conflict. JIFCO’s overarching believe is that intermediate force capabilities provide options that enable the warfighter to seize or regain the initiative in confrontational situations against potential state and non-state adversaries. IFCs, in these situations, may provide a proportional response to acts that appear hostile, but fall short of acts/behaviors that justify the use of deadly force. IFCs represent a strategic risk mitigation that has the potential to provide warfighters a tool to compete below the level of kinetic operations, without losing credibility in the information space. IFCs should provide the ability to dissuade malign behavior from state or non-state actors and impose costs on adversaries while minimizing collateral damage to infrastructure and personnel.

In competition below armed conflict, also referred to as the Gray Zone, hybrid warfare, or irregular warfare, our adversaries use sophisticated, incremental aggression to attack our interests, often stopping short of provoking a lethal response. In these cases, operators might use intermediate force capabilities to deter escalation or provide response

¹ DoD Directive 3000.03E, “DoD Executive Agent for Non-Lethal Weapons (NLW), and NLW Policy, 25 April 2013.

options that are short of lethal force to help diffuse our adversaries' actions. The specific objective of this effort is to gain insight into the operational utility of IFCs for Special Operations Forces (SOF) to attain and maintain a position of advantage in the Gray Zone while deterring lethal conflict escalation.

B. RESEARCH SUMMARY

This research examined the potential effects of a set of intermediate force capabilities (15) and assessed their potential strategic impact on a near-peer adversary during the competition phase. The effort focused on gaining insights and identify challenges to the employment of IFCs through several venues. These venues included leveraging the NPS defense analysis and operations research department faculty and students, conducting a Gray Zone Innovation workshop and designing and executing an analytical wargame to capture challenges and opportunities in a plausible great power competition (GPC) "gray zone" scenario. These venues were purposely linked to provide a better assessment and understanding of the potential concepts for SOF employment of IFC, emerging IFC concepts and technologies, and their implications for operations across the competition continuum. JIFCO supported the effort during all phases of the research to provide additional guidance and direction.

C. RESEARCH EXECUTION CONCEPT OF OPERATION

This research leveraged the Naval Postgraduate School Warfare Innovation Continuum (WIC), a Gray Zone Innovation workshop, multiple Joint Campaign Analysis (JCA) mini-studies and a Wargaming Applications course to develop its insights. Under the NPS WIC construct, an NPS student mini-study team, conducted in the JCA course, informed and underpinned the design and conduct of further research into JIFCO's two critical issues. The mini-study informed the follow on NPS faculty-advised student wargaming team in the Wargaming Applications course. This team designed, developed, conducted, and analyzed a wargame leveraging the findings from the mini-study team. The wargames utilized in this work familiarized participants and observers with both IFCs and concepts for employment. The wargame modeled SOF utilization of IFCs in a South China Sea scenario to best posture SOF to deter escalation of events.

1. Warfare Innovation Continuum

Under the NWSI umbrella, the Warfare Innovation Continuum (WIC) encompasses the research, education, and experimentation efforts, ongoing at NPS. The goal is to align scheduled resident course projects, integrated research, and special campus events into a broad set of coordinated activities that will help provide insight into opportunities for future naval operations and fleet design. Exploring a new topic area each fiscal year, the WIC is a coordinated effort to execute a series of cross-campus educational and research activities that share a central theme. Courses, workshops, and research projects are synchronized to leverage and benefit from prior research that results in a robust body of work focused on each annual topic area.

By incorporating topics of fleet interest into established academic courses, through the WIC structure students and faculty promote research that aligns with fleet priorities while simultaneously achieving the educational requirements for the graduate students. This research effort took advantage of the 2021-2022 “Hybrid Force 2045” WIC structure to support the analysis of IFCs. The “Hybrid Force 2045” aligns activities to address the question

“How might emerging technologies, new operational concepts, and alternative fleet designs contribute to a more effective naval force across the spectrum from competition to conflict? How do the alternative fleet designs enhance the effectiveness and resilience of joint, combined and coalition forces across all domains?”

2. Maritime Gray Zone Warfare Innovation Workshop

The Naval Postgraduate School Warfare Innovation Workshop acts as an innovation engine, leveraging operationally-focused students and defense-oriented faculty to address complex fleet issues – from technical to ethical and from concept-generation to experimentation. Small teams of early career professionals from the fleet, Navy labs, industry, and academia with diverse experience levels and perspectives spend three and a half days rapidly generating concepts of employment and evaluate risk within a future conflict scenario. Government, military, industry, and academic leaders vet these ideas before disseminating results back to Naval leadership. Sponsored by and the Naval Warfare Studies Institute and CRUSER), the Maritime Gray Zone Warfare Innovation workshop was held at NPS from 16-19 November 2021 (See Appendix A). During the

four-day workshop, three teams were facilitated through a rapid concept generation process using tools of user-centered design to respond to the workshop design challenge:

How might emerging technologies, new operational concepts, and new force capabilities contribute to a more effective force in the geo-political competitive phase to deter adversaries, strengthen allied relations, and shape the strategic and operational environment?

After initial input on the problem space from an array of subject matter experts and eight contact hours of focused concept generation and development work, the three teams presented their best ideas on the final afternoon of this four-day workshop.

The Maritime Gray Zone Warfare Innovation Workshop was linked with the NPS Defense Analysis curriculum. To address pandemic mitigation concerns, the workshop was offered in a hybrid participation format. The Maritime Gray Zone (MGZ) Warfare Innovation Workshop (WIW) occurred 6-19 November 2021 on the NPS campus in Monterey with remote participants joining us on the NPS "Virtual Campus" via MS Teams.

In addition to addressing the design challenge, participants were asked three specific questions:

1. Do we have the right capabilities to confront these problems?
2. Do we have the right concepts to confront these problems and.
3. Do we plan to integrate them the right way? And if so, how?

Each of the three teams crafted their own problem statement.

1. Team 109: How do we impose costs on the Chinese Communist Party in order to support U.S. and allies and partners objectives around the world in a way that achieves our policy objectives without unnecessarily escalating tensions with China?
2. Team 111: How might we counter China's Belt and Road Initiative to enable and empower our partner's resilience and growth?
3. Team 113: How might we enable embedded SOF teams in the Gray Zone to communicate status and intent internally and externally across the spectrum of conflict, while managing signature to reduce risk of exposure?

Three student teams had eight hours to go from a blank sheet of paper to their final concepts. After initial input on the problem space from an array of subject matter experts and eight contact hours of focused concept generation, and a final briefing from all teams at the end of the four-day workshop. Team 109 was closer aligned to providing insights for the JIFCO effort and they generated a list of 210 different ideas to address their problem statement.²

3. Joint Campaign Analysis

The Joint Campaign Analysis course studies the development, use, and recent applications of campaign analysis in actual procurement, force structure and operations planning. Emphasis is on formulating the problem, choosing assumptions, structuring the analysis, and measuring effectiveness. A mini-study team of four mid-career students supported this research effort. The mini-study team worked from January to March on exploring what physical capabilities and additional operations may be employed to deter action and/or impose risk on Chinese maritime gray zone activities. The team explored both overt and covert operations, employed by MARSOC, NSW, or conventional naval forces. This included specific ways to challenge Chinese world-wide influence. The team used decision tree analysis where the selected activity will place China in a position, they must decide several courses of action. The team had the opportunity to consider the following maritime gray zone activities.

1. Employment of Team Maru's littoral denial system in Luzon strait and/or Taiwan Strait.
2. Employment of acoustic devices around Chinese Fishing junks to scare fish away.
3. Gift LMACCs to Indonesia and Philippines with a law enforcement detachment and conduct joint patrols with US LMACCs with MARSOC embarked.
4. Conducting non-lethal (or lethal) non-attributional maritime sabotage in critical Belt and Road nodes and arcs.

² Englehorn Lyla, NWSI Maritime Gray Zone Warfare Innovation Workshop Final Report, November 2021.

5. Employing permanent forces to achieve an objective to close Arctic passages when ordered, and others from the NPS Maritime Gray Zone Task Force Workshop.

The team also developed a methodology to assess candidate intermediate force capabilities or actions on a specific U.S. objective in countering a specific Chinese activity. The results of the mini-study team helped JIFCO refine their focus and objective for the wargaming team. This effort resulted in JIFCO determining that the wargaming team should address the following two critical issues.

1. What utility do IFCs provide SOF to maintain advantage in the grey zone?
2. What are the risks of using IFCs?

4. Wargaming Applications

The NPS resident wargaming applications course, when linked with the analysis efforts coming out of the Joint Campaign Analysis course, provides a powerful mechanism to gain additional insights into a sponsor's problem. The intent of the resident NPS wargaming applications course is to educate students on how to initiate, design, develop, conduct, and analyze a wargame for an external sponsor. Six mid-career officers formed the wargaming team to support this research effort and worked with JIFCO from March to June 2022. The team worked directly with JIFCO to refine, define and develop the research statement for the analysis effort. This "problem definition" effort was an iterative process of problem decomposition and structuring between the wargaming team and JIFCO. The end result was a clearer analysis statement: identify and assess intermediate force capabilities and potential concepts of operations to gain a desired strategic effect against a great power competitor during the competition phase in the Grey Zone.

THIS PAGE INTENTIONALLY LEFT BLANK

III. IFC SUPPORTED WARGAME CONDUCT AND ANALYSIS

This section outlines the wargame construct and analysis effort of a set of IFCs identified through the WIC and discussions with JIFCO. This effort was supported by a wargaming study team consisting of the following members: MAJ Caleb Edwards, USA, SF; MAJ James Raub, USA, SF; MAJ Marc Rose, USA, SF; MAJ Augustin Paulo, USA, SF; CDR Milton Mendieta, Navy (Ecuador); Capt Chad Minnick, USAF. The team worked with JIFCO from March to June 2022 to design the wargame “The Gray” to analyze and documented the findings for JIFCO. The Objective of the game was to determine the operational utility of Intermediate Force Capabilities for SOF to gain and maintain a position of advantage in the gray zone while deterring escalation to lethal conflict. The players in the game operated in a fictional world shaped by the collective experiences of SOF officers in competition spaces across the globe. In addition, the game’s design enabled players to expand their knowledge of SOF operations and emerging IFC technologies.

A. Problem Statement and Issues

Objective: Determine the operational utility of Intermediate Force Capabilities (IFCs) for Special Operations Forces (SOF) to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation.

JIFCO Identified Key issues:

- 1) What utility do IFCs provide SOF to maintain advantage in the grey zone?
- 2) What are the risks of using IFCs?

B. Wargame Description:

Wargame Design: A hybrid between seminar and system play, with a generally open-information shared fictitious map with some closed-information elements only available to certain players. Event and capability cards determine the

mechanics of the game and provide immediate feedback. The game addresses which IFCs are used, when, and which IFCs were never used.

C. KEY CONSTRAINTS, LIMITATIONS, AND ASSUMPTIONS.

1. Constraints:

- a. Wargame deadline of 31 MAY 2022 for final development
- b. This game requires at least four players
- c. This game requires players with subject-matter expertise in the use of IFCs and/or Special Operations

2. Limitations.

- a. Authorities & Permissions will bear on the tactical use of these IFCs and may impose greater limits than are captured in the wargame
- b. Modeling real-world risks associated with the use of IFCs is difficult because the outcome of historical events does not necessarily accurately reflect the true risk of a negative outcome. Additionally, risk is multi-faceted, subjective, and dependent on an enormous number of environmental factors which change continuously. The measurement of risk in this wargame will be abstracted to a single number to allow streamlined gameplay.
- c. Limited real-world data to feed wargame adjudication process.

3. Assumptions.

- a. These IFCs will be FMC by 2030 and will meet general specifications outlined in “capabilities deck”
- b. Adversaries will copy IFC technology and will be equipped with similar Intermediate Force Capabilities as the U.S.

D. SIGNIFICANT FINDINGS.

The full set of insights were provided to the sponsor via the Controlled Unclassified Information (CUI) Wargaming Executive Summary submitted to the sponsor in June, 2022.

- a. IFCs **can** provide utility to SOF to maintain an advantage in the gray zone.
- b. The risk of using IFCs is not significantly more than the risk associated with the current conduct of SOF doctrinal tasks.

E. QUANTITATIVE DATA OVERVIEW

1. Approach

- a. The quantitative data presented in this report focuses primarily on the IFCs and their utilization with respect to competition environments. Reference Appendix I and Appendix J of the wargame final report for additional information regarding power and proxy IFC performance.³ Additionally, all graphs presented provide capability and zone numbers. A table of capability card and zone descriptions is provided below for quick reference.
- b. Capability Tables:

³ MAJ Edwards, C., MAJ Raub, J., MAJ Rose, M., MAJ Paulo, A., CDR Mendieta, M., Capt Minnick, C., Final Report for JIFCO from NPS Wargame June 2022.

IFC Capability Cards	
Card ID	Name
C1	HPRF Equipped Helicopter
C2	Stand-off HEL
C3	Stand-off HPRF
C4	Airborne HPRF
C5	Stand-off HPRF
C6	MMW Equipped Vehicle
C7	Jamming Equipped UAS
C8	Expeditionary Contact-less PEVS
C9	Escalation of Force CROWS
C10	Long Range Active Denial Tech
C11	40mm Warning Munitions
C12	Anti-Tank Net
C13	LRAD
C14	Long Range Infrasonic Device
C15	ADS Equipped Helicopter

Non-IFC Capability Cards			
Card ID	Name	Card ID	Name
C16	Riot Squad	C35	Corruption
C17	K9s	C36	Economic Sanctions
C18	Water Cannon	C37	Intelligence
C19	Less Lethal Chemical Irritants	C38	Maritime Militia
C20	Curfew	C39	Lawfare
C21	Mass Arrests	C40	Build Partner Capacity
C22	Less Lethal Munitions	C41	Twitter Trolls
C23	Martial Law	C42	Freedom of Navigation
C24	Deep Pockets	C43	Direct Action
C25	Medical Capability	C44	Special Reconnaissance
C26	Network Development	C45	Foreign Internal Defense
C27	Assassination	C46	Civil Affairs Operations
C28	Enabled Operations	C47	Counterterrorism
C29	Partnered Operations	C48	Military Information Support Ops
C30	Key Leader Engagement	C49	Security Force Assistance
C31	Viral Video	C50	Counterinsurgency
C32	Diplomacy	C51	Hostage Rescue and Recovery
C33	UN/NGO Aid	C52	Foreign Humanitarian Assistance
C34	Traffic Control Point	C53	Advanced Special Operations

c. Total IFCs played or discarded:

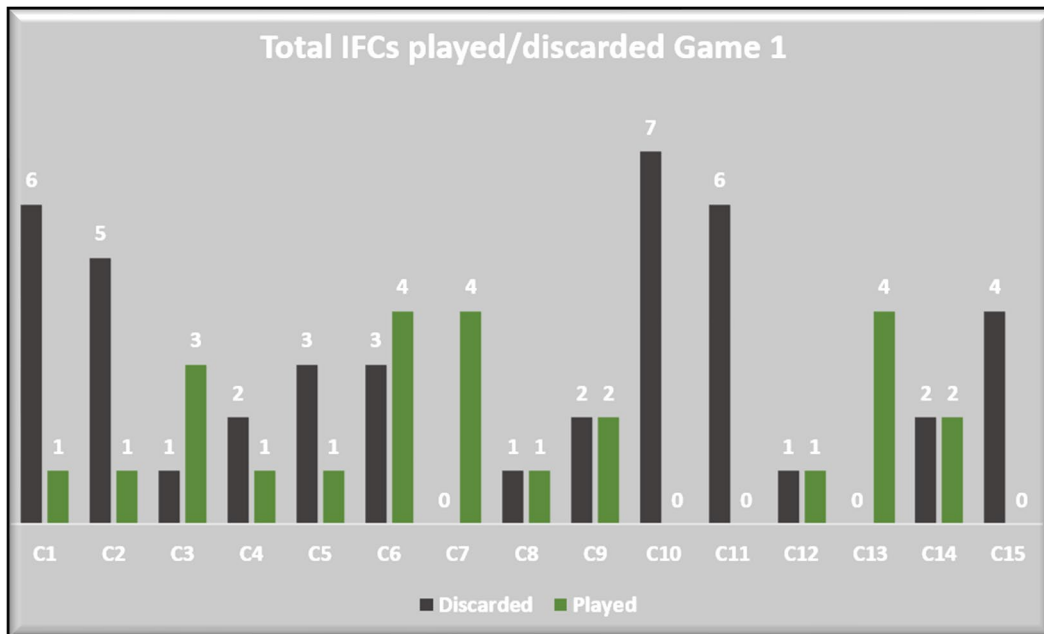


Figure 1: Total IFCs played/discarded game 1

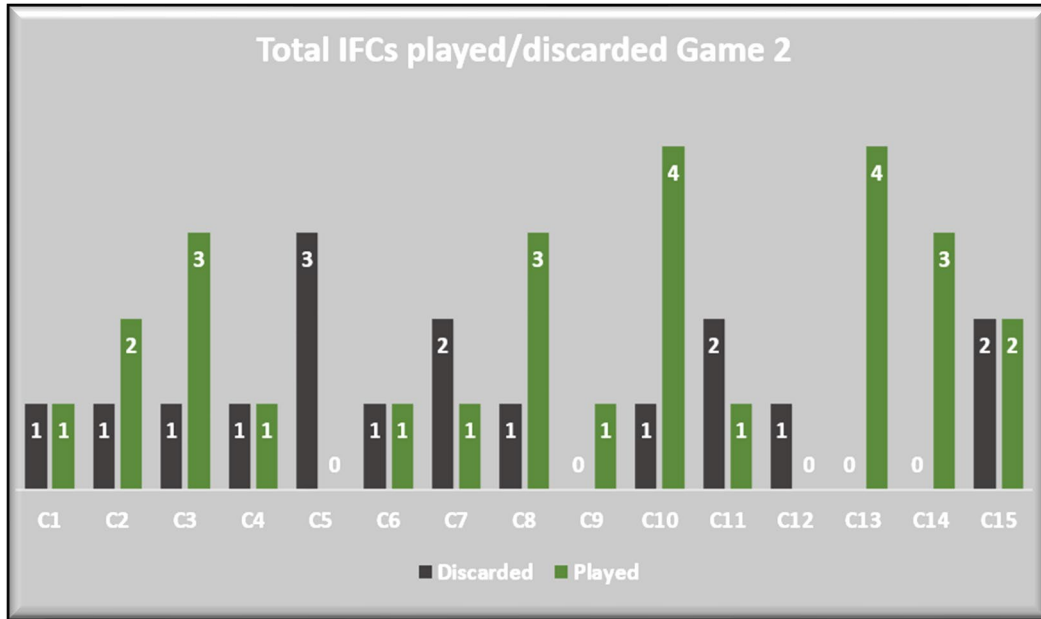


Figure 2: Total IFCs played/discarded game 2

The figures differ significantly from Game 1 to Game 2. This difference is attributed to the player selection between the two games. Game 1 consisted of only Army Special Forces officers who had no prior knowledge of IFCs or the JIFCO. Game 2 players consisted of two JIFCO players and two wargame team developers. Game 2 players held much more knowledge of IFC potential and were able to employ them more against the competition environment. Game 1 players appear to have discarded more IFCs than Game 2.

In both games, C3 (Stand-off HPRF) and C13 (LRAD), were played the same number of times and represented one of the more commonly played IFC capabilities.

- d. Relationship between outcomes and capability cards game 1:



Figure 3: Relationship between outcome and capability cards game 1

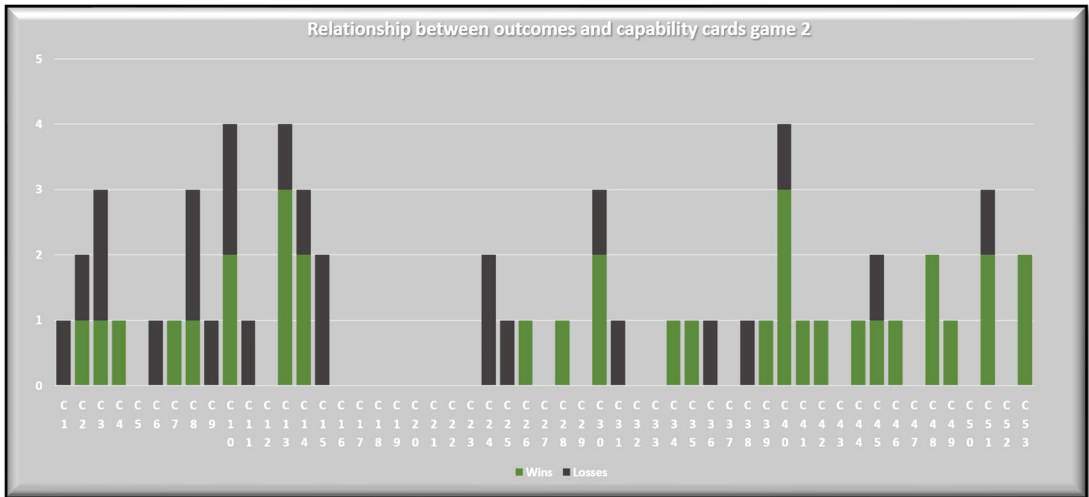


Figure 4: Relationship between outcome and capability cards game 2

Figures 3 and 4 further highlight the player bias between the two game iterations. Players in game one clearly preferred the non-IFC capabilities thus experienced greater success at the right side of the graph. However, ***both games demonstrated successful event engagement with the use of C13 (LRAD) and C14 (Long Range Infrasonic Device).***

- e. Capability comparison per zone: (IFCs represented by blue, Non-IFCs represented by green)



Figure 5: Capability comparison per zone game 1. IFCs are represented by blue. Non-IFCs are green.



Figure 6: Capability comparison per zone game 2. IFCs are represented by blue. Non-IFCs are green.

Figures 5 and 6 graphically represent, by zone, IFC usage compared to Non-IFC usage. The number in the center of the bubble represents the amplification of that data point. The sizes of the bubbles are only congruent within each individual overlay. In both games, IFCs were utilized the most in the border dispute zone. Border disputes exist in every SOF AOR and provide opportunities to exercise the spectrum of SOF capabilities. Application of IFCs in these environments may prove useful for enabling non-kinetic operations.

F. RECOMMENDATIONS

- a. The genre of IFCs with the most utility for SOF are those with counter-UAS applications. Recent conflicts in Syria, Ukraine, Nagorno-Karabakh, and

elsewhere have conclusively demonstrated the proliferation and effectiveness of COTS drone systems. Currently, SOF has been unable to field an effective and reliable counter-UAS system, despite a consistent demand signal. A non-lethal counter-UAS system would be ideal, as UAS systems pose a threat in areas where the threshold of violence has not yet been crossed, and a more kinetic response may not be appropriate.

- b. JIFCO should pursue a two-pronged approach for advocating the use of IFCs in SOF. They should approach Technical Integration Support Companies (TISCs) with the technology and the Theater Special Operations Commands (TSOCs) with recommendations for doctrine and policy. The TISCs are responsible for providing tactical units with new technology and are a natural fit for integrating the advanced technology IFCs JIFCO can provide. The TSOCs are responsible for conducting special operations for the GCCs, and would be responsible for providing permission, or seeking permission from the GCC, that would allow tactical units to incorporate IFCs into operations. The TSOC commander and staff are unlikely to authorize tactical units to deploy and utilize IFCs if they do not have a firm understanding of the risks and benefits of IFCs. This two-pronged approach would ensure that both operators and commanders understand the risks and benefits of IFCs and increase the likelihood that SOF tactical units have access to JIFCO's technology and the authorities and permissions to use it.

THIS PAGE INTENTIONALLY LEFT BLANK

IV. FINDINGS AND RECOMMENDATIONS

The objective of this research effort was to determine the operational utility of IFCs for SOF to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation. The effort focused on gaining insights into the following two major issues for JIFCO:

1. What utility do IFCs provide SOF to maintain advantage in the grey zone?
2. What are the risks of using IFCs?

A. FINDINGS

The full set of insights were provided to the sponsor via the Controlled Unclassified Information (CUI) Wargaming Executive Summary submitted to the sponsor in June, 2022.

1. Issue 1 Findings:

IFCs do have the potential to provide utility to SOF to maintain an advantage in the gray zone while countering lethal conflict.

2. Issue 2 Finding:

The risk of using IFCs is not significantly more than the risk associated with the current conduct of SOF doctrinal tasks.

B. RECOMENDATIONS

The intermediate force capabilities and potential employment mechanisms are still nascent concepts that require further research to better understand how the special operations forces (SOF) community can use them to operate more effectively to establish a position of advantage, while preventing the escalation of violence. Essentially, these employment mechanisms will need to mature through continued programs of wargaming and campaign analysis research to best serve joint intermediate force capabilities office and the SOF community.

APPENDIX A: NWSI MARITIME GRAY ZONE WARFARE INNOVATION WORKSHOP AGENDA (9-19 NOV)



FINAL AGENDA (12 November 2021)

Recorded sessions were posted on the Sakai site and are available upon request.

AUG 2021 (recorded)	SEAPOW CONVERSATION	Intermediate Force Capabilities	Posted	LEIMBACH
		<i>Col Wendell Leimbach USMC, the Director of the Joint Intermediate Force Capabilities Office reviews the relevance of IFCs within the National Defense Strategy.</i>		
OCT 2021 (recorded)	SYSTEMS ENGINEERING	Maritime Sabotage Impact Modeling	Posted	PORTER
		<i>Dr. Wayne Porter reviews modeling done for NSW on the impacts of maritime sabotage</i>		
TUE 9 NOV 1200-1300	DISCOVERY SEMINAR	Crowd Dynamics Modeling Toolkit	Glasgow 109	BAYLOUNY & AROS
		<i>Dr. Anne Marie Baylouny reviews the modeling toolkit her team developed to predict crowd dynamics in response to a variety of stimuli</i>	Recording Posted	
WED 10 NOV 1200-1300	WORKSHOP INTRO	Overview & Tasking	Glasgow 109	HAYS & ENGLEHORN
		<i>CAPT Sean Hays USN gives an overview of the NWSI Maritime Gray Zone Research Task Force, and NWSI</i>	Recording Posted	

		<i>Concepts Branch Lead Lyla Englehorn shares the design challenge for the workshop and guidance on the workshop process</i>		
TUE 16 NOV				
0800-0930	Discovery Discussion	"The Art of War" Analytic Wargaming	Glasgow 109	OCEA
0930-0945	Discovery Discussion	Mapping Gray Maritime Networks	Glasgow 109	SCHROEDER
0945-1000	PROCESS	<i>a review of the plan to get this all done</i>	Glasgow 109	ENGLEHORN
1500-1600	DISCOVER -	synthesize data, determine what you still need	Root 109/111/113	
1600-1700	FRAME -	complete Discovery and create problem statements	Root 109/111/113	
WED 17 NOV				
0800-1000	IDEATE -	divergent, go for quantity!	Root 109/111/113	
1500-1700	Discovery Discussion	Offset Advantage & Peer Competition: <i>Omni- Domain Irregular Warfare</i>	Reed 201/202	TBD
THU 18 NOV				
0800-0900	IDEATE -	converge on an idea and develop it	Root 109/111/113	
0900-1000	PROTOTYPE -	create your first practice pitch	Root 109/111/113	

1500-1600	TEST -	pitch your idea, get feedback	Root 109/111/113	
1600-1700	REPEAT -	incorporate feedback -	Root 109/111/113	
		Is there more you need to know? Check your problem statement - does it still resonate? Go back to your data - is there something else you could use? Something you missed?		
FRI 19 NOV				
1400-1600	FINAL PRESENTATIONS		Glasgow 109	

APPENDIX B: EXECUTIVE SUMMARY OF WARGAME TO JIFCO

1. Problem Statement.

a. **Objective:** Determine the operational utility of Intermediate Force Capabilities (IFCs) for Special Operations Forces (SOF) to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation.

b. **Key issues:**

- 1) What utility do IFCs provide SOF to maintain advantage in the grey zone?
- 2) What are the risks of using IFCs?

2. **Scenario.** Hypothetical scenario combining elements from CENTCOM and INDOPACOM AORs. A BLUE Power supports a BLUE Proxy to face a RED Power that supports its own RED Proxy. Both proxies try to defeat an external Violent Extremist Organization (VEO). Three variables are measured: Risk, Influence, and Control.

a. **Geographic region.** The game is divided into 4 different zones:

- 1) Zone 1: Competition zone based on border dispute between BLUE Proxy and RED Proxy.
- 2) Zone 2: Competition zone in the capital of the BLUE proxy where RED Proxy is subverting BLUE Proxy control of its population.
- 3) Zone 3: Maritime based competition zone where RED Proxy is expanding infrastructure into international waters and disrupting BLUE Proxy economics.
- 4) Zone 4: Competition zone where all players are conducting counterterrorism operation against a VEO in a shared operating environment.

b. **Time.** The events unfold in the year 2030.

c. **Road to war.**

- 1) Zone 1: The RED proxy disputes the internationally recognized boundary between them and the BLUE proxy. The BLUE proxy works to defend their border from incursions by the RED proxy, and the RED proxy works to extend their effective control over the disputed region and effectively re-draw

the border in their favor. This situation is complicated by Bedouins, a nomadic people who move seamlessly across the border and live in the disputed region, and refugees. The RED power and BLUE power are both indirectly supporting their respective proxies achieve their goals in this zone.

- 2) Zone 2: There is a small enclave in the BLUE proxy capital city whose residents are the same ethnicity as the RED proxy. The RED proxy, supported by the RED power, is using this area as a springboard to subvert the democratically elected government of BLUE proxy. BLUE proxy, support by BLUE power, conducts operations to maintain control of their population and ensure their government functions properly.
 - 3) Zone 3: A tangled mass of Exclusive Economic Zones (EEZs) and small islands intertwine the territory and interests of all four players.
 - 4) Zone 4: The dysfunctional country of Burkistan is threatened by a rising VEO that promises to fill the vacuum created by Burkistan's incompetent government. RED and RED Proxy are conducting a combined operation, adjacent to a BLUE and BLUE proxy combined operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue interests are aligned, the underlying tensions remain between the four players.
3. **Players.** There are four players in the game: the BLUE POWER, the BLUE PROXY, the RED POWER, and the RED PROXY. Each player works to achieve their own goals and interests, but the red players are generally aligned against the blue players. Teamwork between the powers and their proxies is encouraged. The white cell consists of a game moderator and SOF SME, an IFC SME, two qualitative data recorders, one quantitative data recorder, and a "banker."
- a. **Player Role Objectives.**
 - 1) BLUE Power: Gain an influence advantage over the RED Power, defeat the VEO, and assist the BLUE Proxy gain control over the RED proxy.
 - 2) BLUE Proxy: Gain control over the RED proxy, protect sovereignty, maintain the status quo on the border and in their EEZ, and defeat the VEO.

- 3) RED Power: Gain an influence advantage over the BLUE Power, assist the RED Proxy gain control over the BLUE proxy, and defeat the VEO
 - 4) RED Proxy: Gain control over the BLUE proxy, advance the border, destabilize the BLUE proxy government, and defeat the VEO.
- b. **Available Resources:** Each player receives eight capability cards in each turn, which represent different capabilities at their disposal to achieve a competitive advantage. These capabilities range from various IFCs offered by JIFCO, to SOF core tasks, to other lethal and non-lethal options.
 - c. **Player Experience and Expertise:** All players were Special Forces officers with extensive operational experience in multiple combatant commands including CENTCOM, EUCOM, AFRICOM, and INDOPACOM. No players had any previous operational experience with the IFCs offered by JIFCO.
4. **Wargame Description:**
- a. **Wargame Design:** A hybrid between seminar and system play, with a generally open-information shared fictitious map with some closed-information elements only available to certain players. Event and capability cards determine the mechanics of the game and provide immediate feedback. The game will answer which IFCs were used when, and which IFCs were never used.
 - b. **Wargame Execution:**
 - 1) Sequence: The game consists of nine turns. Each turn will move sequentially through all four zones. Each zone has ten associated event cards. An event card sets the zone's scenario for each turn. The players will play capability cards to address the issues presented by the event card.
 - 2) Steps per Turn: The "banker" will deal each player eight capability cards. Each zone will have one event card displayed. The banker will read the event card aloud, each event card will consist of a brief narrative, a risk score, and starting control and influence scores. After the event cards are read, each player is allowed to swap up to two capability cards. Each player will then play up to three capability cards, one per zone, with two potential outcomes:
 1. Blind play: this is the standard method of play. Each player places a capability card face down in the zone. Once every player has made their

decision, the cards will be revealed. Each player will provide a justification for the card they played. If the moderator accepts their justification, the control and influence points from the capability card will be added to their score. The Power and Proxy of each color may confer with each other on the optimal cards to play in each zone prior to placing cards on the board.

2. Sequential play: Some event cards will indicate sequential play. The players will play their cards face up in the order indicated by the event card. Players moving second in sequential play will have to play capability cards directly responding to the cards played by the first movers. Players playing cards second in a sequential move can play the same card as previous players to nullify the effects of that card. (E.G. Red proxy plays corruption and Blue proxy responds with corruption thus nullifying the effects of red proxy's card)
- 3) Excessive risk: If players exceed the risk tolerance, any cards that have not been adjudicated will be thrown out (e.g. if the red players exceed their risk tolerance in Zone 3, all cards in Zone 4 will not be played). Risk is cumulative across the zones, but resets every turn.
- 4) Media modifier: The media token moves zones each turn. When playing a zone with media presence the red and blue power each roll one dice. An even number represents a positive media engagement and increases your risk tolerance by two points (Red players to 10 risk points, blue players to 8 risk points). An odd number represents a negative media engagement and lowers your risk tolerance by two points (Red players to 6 risk points, blue players to 4 risk points).
- 5) How to win:
 1. *Power*: At the end of the game the two powers will subtract their risk score from their influence score. The power with the highest remaining influence score (it will probably be negative) is the winner.

2. *Proxy*: The Proxy with the most hexes on the board is the winner. Hexes are won by accumulating a greater number of control points than your rival proxy in each zone –see Scoring for details.
3. *Strength of win*: If the power and the proxy of the same color both win, then it is a strong win, if the power and proxy of opposite colors win, then it is a weak win.

5. **Methods, Models, and Tools (MMTs).**

- a. **Adjudication**: Player capabilities and corresponding scores are recorded by a data collector. Quantitative adjudication is displayed on a screen next to the game board. Players can reference the screen throughout the game to inform their individual investment in each zone. Influence and risk points are cumulative and will be added to the blue and red powers' scores respectively. The proxy control points are weighed against each other. The proxy will take their score from the last turn, the control points from the event card's starting condition, and the combined control points from the capability cards played by themselves and their sponsor power. The proxy with the most points subtracts the value of their opponent's score from their point total, and the remaining number becomes that zone's control score. If the proxy ends the round with a positive number in the zone, and they played a capability card in that zone, then they will be awarded a hex. Proxy players add hex tokens to each zone that they control at the end of each turn.
- b. **Player Feedback/updates**: After the moderator has ruled on the validity of each card in a zone, the score keeper will announce the results of the competition in that zone. Players must manage the accumulated risk scores for their capability cards. The Red players can play cards with a combined total (across all zones) of **8** risk points, while the blue players are limited to **6** risk points.

6. **Key Constraints, Limitations, and Assumptions.**

a. **Constraints:**

- 1) Wargame deadline of 31 MAY 2022 for final development

- 2) This game requires at least four players
- 3) This game requires players with subject-matter expertise in the use of IFCs and/or Special Operations

b. Limitations.

- 1) Authorities & Permissions will bear on the tactical use of these IFCs and may impose greater limits than are captured in the wargame
- 2) Modeling real-world risks associated with the use of IFCs is difficult because the outcome of historical events does not necessarily accurately reflect the true risk of a negative outcome. Additionally, risk is multi-faceted, subjective, and dependent on an enormous number of environmental factors which change continuously. The measurement of risk in this wargame will be abstracted to a single number to allow streamlined gameplay.
- 3) Limited real-world data to feed wargame adjudication process.

c. Assumptions.

- 1) These IFCs will be FMC by 2030 and will meet general specifications outlined in “capabilities deck”
- 2) Adversaries will copy IFC technology and will be equipped with similar Intermediate Force Capabilities as the U.S.

7. Findings.

The full set of insights were provided to the sponsor via the Controlled Unclassified Information (CUI) Wargaming Executive Summary submitted to the sponsor in June, 2022.

Study Team:

MAJ Caleb Edwards, USA, SF

MAJ James Raub, USA, SF

MAJ Marc Rose, USA, SF

MAJ Augustin Paulo, USA, SF

CDR Milton Mendieta, Navy (Ecuador)

Capt Chad Minnick, USAF

APPENDIX C FINAL NPS WARGAME REPORT TO JIFCO

This section outlines the wargame construct and analysis effort of a set of IFCs identified through the WIC and discussions with JIFCO. This effort was supported by a mini study team consisting of the following members: MAJ Caleb Edwards, USA, SF; MAJ James Raub, USA, SF; MAJ Marc Rose, USA, SF; MAJ Augustin Paulo, USA, SF; CDR Milton Mendieta, Navy (Ecuador); Capt Chad Minnick, USAF

2. Wargame Problem Statement.

- a. **Objective:** Determine the operational utility of Intermediate Force Capabilities (IFCs) for Special Operations Forces (SOF) to attain and maintain a position of advantage in the grey zone while deterring lethal conflict escalation.
- b. **JIFCO Identified Key issues:**
 - 3) What utility do IFCs provide SOF to maintain advantage in the grey zone?
 - 4) What are the risks of using IFCs?

3. Background

- a. **Importance:** IFCs incorporate everything between presence and lethality. JIFCO creates technology, advocates for the implementation of IFCs to warfighters and policy-makers and advises the use of IFCs. IFCs provide warfighters tools to seize the initiative while competing below the level of armed conflict. The results of this wargame should provide JIFCO with a starting point for continued discussion and analysis on the appropriate integration of IFCs into SOF units and how IFCs can support existing and future SOF operations.
- b. **JIFCO Provided Study Resources:**
 - 1) JIFCO IFC capability brief.
 - 2) RAND Corporation, *How to Effectively Assess the Impact of Non-Lethal Weapons as Intermediate Force Capabilities*, www.rand.org/t/RRA654-1, 2022.
 - 3) Results from JIFCO wargame with NATO.
- c. **Overview of Wargame Effort:**
 - 1) Playtests:
 1. *Date: 22 May 2022*
 - a. Players: Study Team
 - b. Type: Full playtest
 2. *Date: 26 May 2022*
 - a. Players: Major Michael Tovo (Army SF), Major Augustin Paulo (Army SF), Major Thomas Kraus (Army CA), LCDR Drake Thornton (USCG)
 - b. Type: Blind playtest

3. *Date: 2 June 2022*
 - a. Players: Study Team
 - b. Type: Dress Rehearsal

4. *Date: 8 June 2022*
 - a. Players: Major Scott Rowen (Army SF), Major Joseph Simon (Army SF), Major Andrew Demoss (Army SF), Major Thomas Stanley (Army SF)
 - b. Type: Sponsor Observed Game 1

5. *Date: 8 June 2022*
 - a. Players: Major Augustin Paulo (Army SF), Major James Raub (Army SF), COL Wendell Leimbach (JIFCO CDR), Mr. John Keenan (JIFCO Principal Deputy)
 - b. Type: Sponsor Observed Game 2

4. **Scenario.** A team developed hypothetical scenario combining elements from CENTCOM and INDOPACOM AORs. A BLUE Power supports a BLUE Proxy to face a RED Power that supports its own RED Proxy. Both proxies try to defeat an external Violent Extremist Organization (VEO). The wargame construct reviews three IFC related variables: Risk, Influence, and Control.
 - a. **Geographic region.** The game is divided into 4 different zones:
 - 1) Zone 1: Competition zone based on border dispute between BLUE Proxy and RED Proxy.
 - 2) Zone 2: Competition zone in the capital of the BLUE proxy where RED Proxy is subverting BLUE Proxy control of its population.
 - 3) Zone 3: Maritime based competition zone where RED Proxy is expanding infrastructure into international waters and disrupting BLUE Proxy economics.
 - 4) Zone 4: Competition zone where all players are conducting counterterrorism operation against a VEO in a shared operating environment.

 - b. **Time.** The events unfold in the year 2030.

 - c. **Road to war.**
 - 1) Zone 1: The RED proxy disputes the internationally recognized boundary between them and the BLUE proxy. The BLUE proxy works to defend their border from incursions by the RED proxy, and the RED proxy works to extend their effective control over the disputed region and effectively re-draw the border in their favor. This situation is complicated by Bedouins, a nomadic people who move seamlessly across the border and live in the disputed region, and refugees. The RED power and BLUE

power are both indirectly supporting their respective proxies achieve their goals in this zone.

- 2) Zone 2: There is a small enclave in the BLUE proxy capital city whose residents are the same ethnicity as the RED proxy. The RED proxy, supported by the RED power, is using this area as a springboard to subvert the democratically elected government of BLUE proxy. BLUE proxy, support by BLUE power, conducts operations to maintain control of their population and ensure their government functions properly.
- 3) Zone 3: A tangled mass of Exclusive Economic Zones (EEZs) and small islands intertwine the territory and interests of all four players.
- 4) Zone 4: The dysfunctional country of Burkistan is threatened by a rising VEO that promises to fill the vacuum created by Burkistan's incompetent government. RED and RED Proxy are conducting a combined operation, adjacent to a BLUE and BLUE proxy combined operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue interests are aligned, the underlying tensions remain between the four players.

5. **Players.** There are four players in the game: the BLUE POWER, the BLUE PROXY, the RED POWER, and the RED PROXY. Each player works to achieve their own goals and interests, but the red players are generally aligned against the blue players. Teamwork between the powers and their proxies is encouraged. The white cell consists of a game moderator and SOF SME, an IFC SME, two qualitative data recorders, one quantitative data recorder, and a "banker."

a. **Player Role Objectives.**

- 1) BLUE Power: Gain an influence advantage over the RED Power, defeat the VEO, and assist the BLUE Proxy gain control over the RED proxy.
- 2) BLUE Proxy: Gain control over the RED proxy, protect sovereignty, maintain the status quo on the border and in their EEZ, and defeat the VEO.
- 3) RED Power: Gain an influence advantage over the BLUE Power, assist the RED Proxy gain control over the BLUE proxy, and defeat the VEO
- 4) RED Proxy: Gain control over the BLUE proxy, advance the border, destabilize the BLUE proxy government, and defeat the VEO.

- b. **Available Resources:** Each player receives eight capability cards in each turn, which represent different capabilities at their disposal to achieve a competitive advantage. These capabilities range from various IFCs offered by JIFCO, to SOF core tasks, to other lethal and non-lethal options.

- c. **Player Experience and Expertise:** All players were Special Forces officers with extensive operational experience in multiple combatant commands including

CENTCOM, EUCOM, AFRICOM, and INDOPACOM. No players had any previous operational experience with the IFCs offered by JIFCO.

6. **Wargame Description:**

- a. **Wargame Design:** A hybrid between seminar and system play, with a generally open-information shared fictitious map with some closed-information elements only available to certain players. Event and capability cards determine the mechanics of the game and provide immediate feedback. The game addresses which IFCs are used, when, and which IFCs were never used.
- b. **Wargame Execution:**
 - 1) Sequence: The game consists of nine turns. Each turn will move sequentially through all four zones. Each zone has ten associated event cards. An event card sets the zone's scenario for each turn. The players will play capability cards to address the issues presented by the event card.
 - 2) Steps per Turn: The "banker" will deal each player eight capability cards. Each zone will have one event card displayed. The banker will read the event card aloud, each event card will consist of a brief narrative, a risk score, and starting control and influence scores. After the event cards are read, each player is allowed to swap up to two capability cards. Each player will then play up to three capability cards, one per zone, with two potential outcomes:
 1. Blind play: this is the standard method of play. Each player places a capability card face down in the zone. Once every player has made their decision, the cards will be revealed. Each player will provide a justification for the card they played. If the moderator accepts their justification, the control and influence points from the capability card will be added to their score. The Power and Proxy of each color may confer with each other on the optimal cards to play in each zone prior to placing cards on the board.
 2. Sequential play: Some event cards will indicate sequential play. The players will play their cards face up in the order indicated by the event card. Players moving second in sequential play will have to play capability cards directly responding to the cards played by the first movers. Players playing cards second in a sequential move can play the same card as previous players to nullify the effects of that card. (E.G. Red proxy plays corruption and Blue proxy responds with corruption thus nullifying the effects of red proxy's card)
 - 3) Excessive risk: If players exceed the risk tolerance, any cards that have not been adjudicated will be thrown out (e.g. if the red players exceed their risk tolerance in Zone 3, all cards in Zone 4 will not be played). Risk is cumulative across the zones, but resets every turn.
 - 4) Media modifier: The media token moves zones each turn. When playing a zone with media presence the red and blue power each roll one dice. An even number represents a positive media engagement and increases your risk tolerance by two points (Red players to 10 risk points, blue players to 8 risk points). An odd number represents a negative media engagement and lowers

your risk tolerance by two points (Red players to 6 risk points, blue players to 4 risk points).

5) How to win:

1. *Power*: At the end of the game the two powers will subtract their risk score from their influence score. The power with the highest remaining influence score (it will probably be negative) is the winner.
2. *Proxy*: The Proxy with the most hexes on the board is the winner. Hexes are won by accumulating a greater number of control points than your rival proxy in each zone –see Scoring for details.
3. *Strength of win*: If the power and the proxy of the same color both win, then it is a strong win, if the power and proxy of opposite colors win, then it is a weak win.

7. **Methods, Models, and Tools (MMTs).**

- a. **Adjudication**: Player capabilities and corresponding scores are recorded by a data collector. Quantitative adjudication is displayed on a screen next to the game board. Players can reference the screen throughout the game to inform their individual investment in each zone. Influence and risk points are cumulative and will be added to the blue and red powers' scores respectively. The proxy control points are weighed against each other. The proxy will take their score from the last turn, the control points from the event card's starting condition, and the combined control points from the capability cards played by themselves and their sponsor power. The proxy with the most points subtracts the value of their opponent's score from their point total, and the remaining number becomes that zone's control score. If the proxy ends the round with a positive number in the zone, and they played a capability card in that zone, then they will be awarded a hex. Proxy players add hex tokens to each zone that they control at the end of each turn.
- b. **Player Feedback/updates**: After the moderator has ruled on the validity of each card in a zone, the score keeper will announce the results of the competition in that zone. Players must manage the accumulated risk scores for their capability cards. The Red players can play cards with a combined total (across all zones) of **8** risk points, while the blue players are limited to **6** risk points.

8. **Key Constraints, Limitations, and Assumptions.**

- a. **Constraints**:
 - 1) Wargame deadline of 31 MAY 2022 for final development
 - 2) This game requires at least four players
 - 3) This game requires players with subject-matter expertise in the use of IFCs and/or Special Operations
- b. **Limitations**.
 - 1) Authorities & Permissions will bear on the tactical use of these IFCs and may impose greater limits than are captured in the wargame
 - 2) Modeling real-world risks associated with the use of IFCs is difficult because the outcome of historical events does not necessarily accurately reflect the

true risk of a negative outcome. Additionally, risk is multi-faceted, subjective, and dependent on an enormous number of environmental factors which change continuously. The measurement of risk in this wargame will be abstracted to a single number to allow streamlined gameplay.

3) Limited real-world data to feed wargame adjudication process.

c. Assumptions.

- 1) These IFCs will be FMC by 2030 and will meet general specifications outlined in “capabilities deck”
- 2) Adversaries will copy IFC technology and will be equipped with similar Intermediate Force Capabilities as the U.S.

9. Findings.

The full set of insights were provided to the sponsor via the Controlled Unclassified Information (CUI) Wargaming Executive Summary submitted to the sponsor in June, 2022.

10. Quantitative Data Overview

a. Approach

- 1) The quantitative data from the two sponsor attended sessions is available in Appendix I for game one and Appendix J for game two. The data presented in this final report focuses primarily on the IFCs and their utilization with respect to competition environments. Reference appendix I and appendix J for additional information regarding power and proxy IFC performance. Additionally, all graphs presented provide capability and zone numbers. A table of capability card and zone descriptions is provided below for quick reference.
- 2) Capability Tables:

IFC Capability Cards	
Card ID	Name
C1	HPRF Equipped Helicopter
C2	Stand-off HEL
C3	Stand-off HPRF
C4	Airborne HPRF
C5	Stand-off HPRF
C6	MMW Equipped Vehicle
C7	Jamming Equipped UAS
C8	Expeditionary Contact-less PEVS
C9	Escalation of Force CROWS
C10	Long Range Active Denial Tech
C11	40mm Warning Munitions
C12	Anti-Tank Net
C13	LRAD
C14	Long Range Infrasonic Device
C15	ADS Equipped Helicopter

Non-IFC Capability Cards			
Card ID	Name	Card ID	Name
C16	Riot Squad	C35	Corruption
C17	K9s	C36	Economic Sanctions
C18	Water Cannon	C37	Intelligence
C19	Less Lethal Chemical Irritants	C38	Maritime Militia
C20	Curfew	C39	Lawfare
C21	Mass Arrests	C40	Build Partner Capacity
C22	Less Lethal Munitions	C41	Twitter Trolls
C23	Martial Law	C42	Freedom of Navigation
C24	Deep Pockets	C43	Direct Action
C25	Medical Capability	C44	Special Reconnaissance
C26	Network Development	C45	Foreign Internal Defense
C27	Assassination	C46	Civil Affairs Operations
C28	Enabled Operations	C47	Counterterrorism
C29	Partnered Operations	C48	Military Information Support Ops
C30	Key Leader Engagement	C49	Security Force Assistance
C31	Viral Video	C50	Counterinsurgency
C32	Diplomacy	C51	Hostage Rescue and Recovery
C33	UN/NGO Aid	C52	Foreign Humanitarian Assistance
C34	Traffic Control Point	C53	Advanced Special Operations

i) Zone Description:

<p>Zone 1: The RED proxy disputes the internationally recognized boundary between them and the BLUE proxy. The BLUE proxy works to defend their border from incursions by the RED proxy, and the RED proxy works to extend their effective control over the disputed region and effectively re-draw the border in their favor. This situation is complicated by Bedouins, a nomadic people who move seamlessly across the border and live in the disputed region, and refugees. The RED power and BLUE power are both indirectly supporting their respective proxies achieve their goals in this zone.</p>
<p>Zone 2: There is a small enclave in the BLUE proxy capital city whose residents are the same ethnicity as the RED proxy. The RED proxy, supported by the RED power, is using this area as a springboard to subvert the democratically elected government of BLUE proxy. BLUE proxy, support by BLUE power, conducts operations to maintain control of their population and ensure their government functions properly.</p>
<p>Zone 3: A tangled mass of Exclusive Economic Zones (EEZs) and small islands intertwine the territory and interests of all four players.</p>
<p>Zone 4: The dysfunctional country of Burkistan is threatened by a rising VEO that promises to fill the vacuum created by Burkistan's incompetent government. RED and RED Proxy are conducting a combined operation, adjacent to a BLUE and BLUE proxy combined operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue interests are aligned, the underlying tensions remain between the four players.</p>

b. Total IFCs played or discarded:

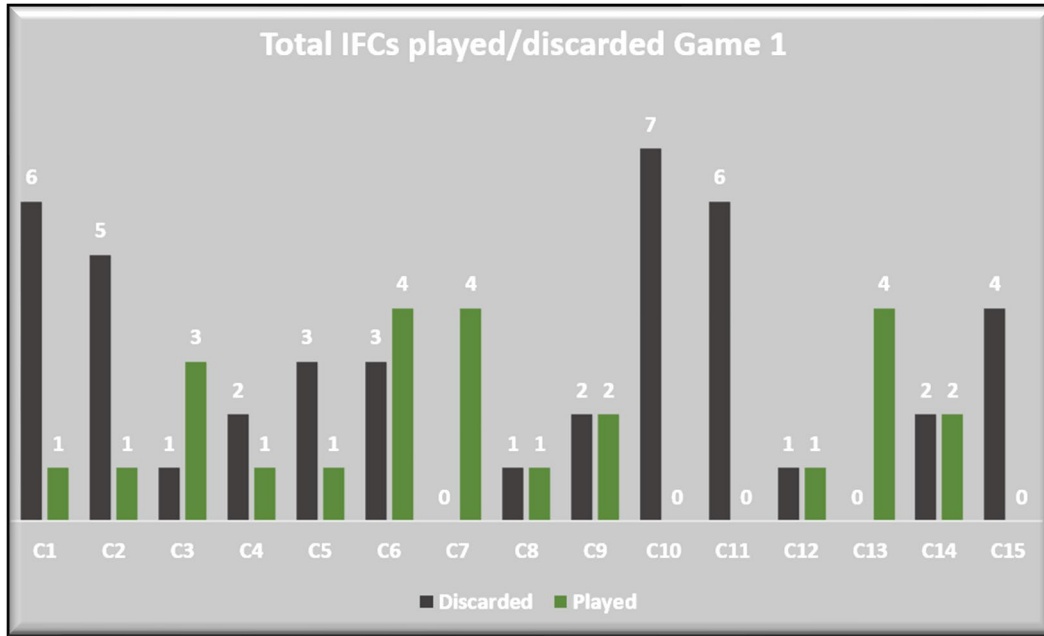


Figure 7: Total IFCs played/discarded game 1

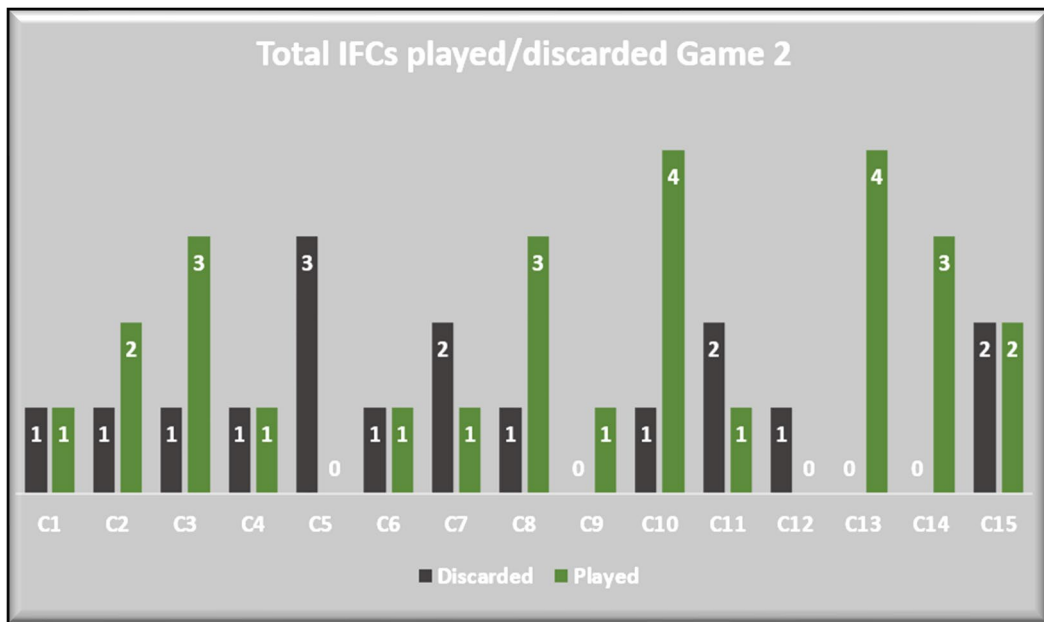


Figure 8: Total IFCs played/discarded game 2

The graphs differ significantly from Game 1 to Game 2. This difference is attributed to the player selection between the two games. Game 1 consisted of only Army Special Forces officers who had no prior knowledge of IFCs or the JIFCO. Game 2 players consisted of two JIFCO players and two wargame team developers. Game 2 players held much more knowledge of IFC potential and were able to employ them more against the competition environment. Game 1 players appear to have discarded more IFCs than Game 2.

In both games, C3 (Stand-off HPRF) and C13 (LRAD), were played the same number of times and represented one of the more commonly played IFC capabilities.

c. Relationship between outcomes and capability cards game 1:

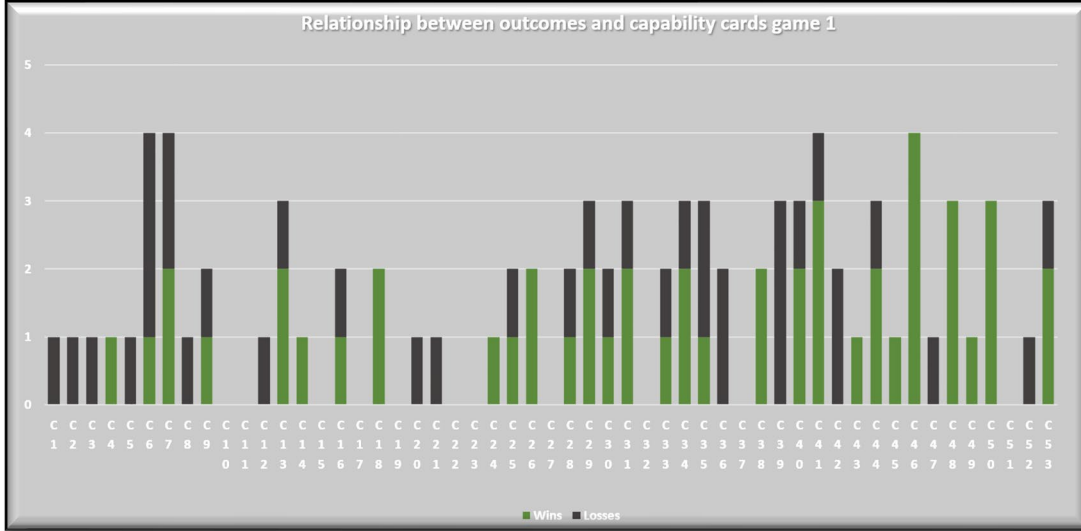


Figure 9: Relationship between outcome and capability cards game 1

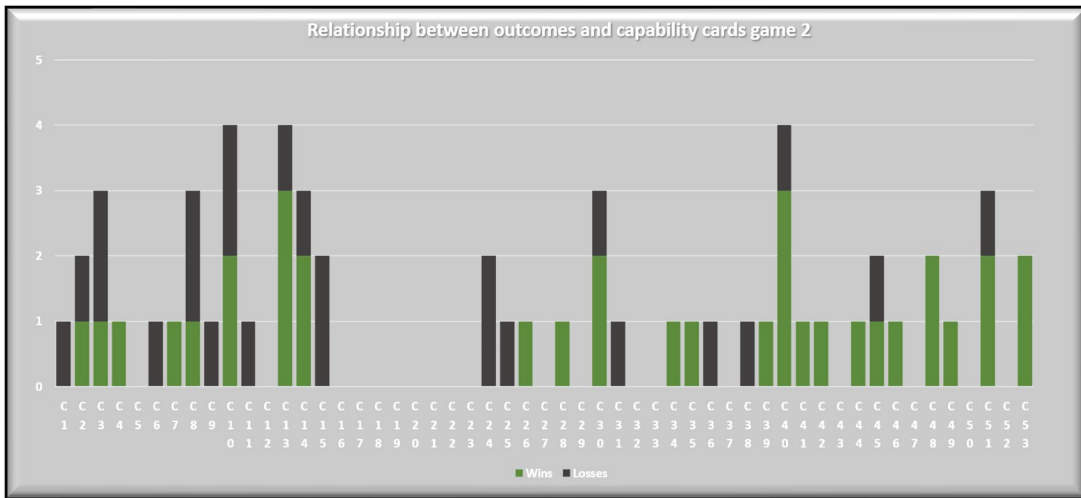


Figure 10: Relationship between outcome and capability cards game 2

Figures 3 and 4 further highlight the player bias between the two game iterations. Players in game one clearly preferred the non-IFC capabilities thus experienced greater success at the right side of the graph. However, **both games demonstrated successful event engagement with the use of C13 (LRAD) and C14 (Long Range Infrasonic Device).**

d. Capability comparison per zone: (IFCs represented by blue, Non-IFCs represented by green)



Figure 11: Capability comparison per zone game 1. IFCs are represented by blue. Non-IFCs are green.



Figure 12: Capability comparison per zone game 2. IFCs are represented by blue. Non-IFCs are green.

Figures 5 and 6 graphically represent, by zone, IFC usage compared to Non-IFC usage. The number in the center of the bubble represents the amplification of that data point. The sizes of the bubbles are only congruent within each individual overlay. In both games, IFCs were utilized the most in the border dispute zone. Border disputes exist in every SOF AOR and provide opportunities to exercise the spectrum of SOF capabilities. Application of IFCs in these environments may prove useful for enabling non-kinetic operations.

11. Recommendations

- a. The genre of IFCs with the most utility for SOF are those with counter-UAS applications. Recent conflicts in Syria, Ukraine, Nagorno-Karabakh, and elsewhere have conclusively demonstrated the proliferation and effectiveness of COTS drone systems. Currently, SOF has been unable to field an effective and reliable counter-UAS system, despite a consistent demand signal. A non-lethal counter-UAS system would be ideal, as UAS systems pose a threat in areas where the threshold of violence has not yet been crossed, and a more kinetic response may not be appropriate.

- b. Reference appendix D, *Hypothetical use-case vignettes of IFCs for SOF operations*, for more examples of potential SOF applications for specific IFC technologies.
- c. JIFCO should pursue a two-pronged approach for advocating the use of IFCs in SOF. They should approach Technical Integration Support Companies (TISCs) with the technology and the Theater Special Operations Commands (TSOCs) with recommendations for doctrine and policy. The TISCs are responsible for providing tactical units with new technology and are a natural fit for integrating the advanced technology IFCs JIFCO can provide. The TSOCs are responsible for conducting special operations for the GCCs, and would be responsible for providing permission, or seeking permission from the GCC, that would allow tactical units to incorporate IFCs into operations. The TSOC commander and staff are unlikely to authorize tactical units to deploy and utilize IFCs if they do not have a firm understanding of the risks and benefits of IFCs. This two-pronged approach would ensure that both operators and commanders understand the risks and benefits of IFCs, and increase the likelihood that SOF tactical units have access to JIFCO's technology and the authorities and permissions to use it.

12. Future Work: Future work – identify issues to be addressed in future wargames that were revealed during gameplay and the quick look report.

- a. Conduct a wargame at the tactical level. This wargame focused primarily on the operational/strategic level. Additional wargames should focus on tactical application of IFCs.
- b. Generate more data. This wargame focused on qualitative data and conducting more iterations could be useful to generate a larger pool of quantitative data for further analysis.

13. After Action Review:

a. Player Strategy Overview

1) Game One.

- 1. Blue team: The Blue team played an aggressive game, maximizing their allowable risk and focusing their efforts on Zones one through three. This strategy gave them an advantage over the more cautious red team, whose resources were spread evenly across all four zones. This strategy would have been less successful had a mechanism existed to penalize the Blue team for failing to address the VEO threat. Blue team played traditional SOF capabilities heavily at first, but then began implementing IFCs once they became more familiar with the structure of the game and the capabilities of the available IFCs.
- 2. Red team: The Red team played a more risk adverse game than expected, and they allocated their resources evenly across the zones. The Blue team built up a sizeable, but not insurmountable, lead early, which somewhat demoralized the red team. The red team failed to completely adopt the desired mindset of a threat country or its proxies. They played very few IFCs and did entirely appreciate how a malign adversary could use IFCs (which would presumably be copies of blue force IFCs) to their advantage.

2) Game two.

1. Blue team: The Blue team again played an aggressive game, continuing to maximize their allowable risk. Blue initially allocated their resources evenly across all zones, but once they began falling behind they shifted to focusing on only three zones where they had the greatest chance of success. Blue team focused equally on gaining influence and control, however were only successful in winning influence, the blue proxy ultimately ceded significant control to the Red Proxy. Blue team integrated IFCs early and consistently throughout the game.
2. Red team: The red team played a much more aggressive game for the second iteration, successfully adopting the more risk-tolerant and cunning mindset expected of the Red players. Red focused largely on winning control, they succeeded at dominating the competition for control, but ended up losing the influence competition. Red team successfully integrated IFCs and demonstrated the potential for an adversary to copy IFC technology and implement them more widely with less concern for counter-narrative or human rights.

b. Lessons Learned

- 1) Provide IFC capability brief to players. The wargame players were familiar with SOF operational tasks and legacy capabilities, but were unfamiliar with the advanced IFCs. While the players did eventually incorporate advanced IFCs, a short briefing on the capabilities of the various technologies incorporated in advanced IFCs, such as directed energy weapons or high-powered radio frequency devices, would have been helpful. Another technique would be to provide players an IFC handout as a read-ahead, and conduct the rules-brief in person.
- 2) Include more information on the signature of each IFC. Players were unclear on the signature of each IFC. Information that should have been included to aid player decision-making regarding the signature of each IFC would include: electromagnetic signature of the device, physical description (i.e. size and shape), feasibility of concealment or camouflage, sound of device, the possibility of detecting an emission, and any visible marks from the effects of the emissions.
- 3) Ensure players have opportunity to get in the correct mindset. The roles of each player were abstracted into generic representations of real countries, in order to minimize the amount of expert knowledge required to play the role of a friendly or an aggressor power. All that was required was a general knowledge of friendly and competitor countries' attitudes towards risk and human-rights. Despite this abstraction, some players still required a few turns to achieve a mindset in-line with the style of play expected from their role in the game.
- 4) Add specific cyber effects. Adding specific cyber or malware capabilities would have provided the players another genre of IFCs to incorporate in their gray-zone activities.

14. Appendices:

- a. DCMP
- b. Quick Look Report Game One
- c. Quick Look Report Game Two
- d. Hypothetical use-case vignettes of IFCs for SOF operations
- e. Event Cards
- f. Capability Cards
- g. “The Gray” Rules
- h. “The Gray” Player Handouts

APPENDIX D “THE GRAY” PLAYER READ AHEADS

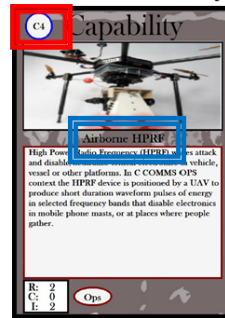
RED POWER

Inspiration: China, Russia, Iran

- **OBJECTIVE:** Gain an influence advantage over the Blue power.
- **Secondary Objectives:**
 - Assist the red proxy gain control over the blue proxy
 - Defeat the VEO
- **Background:** You are a rising power with an axe to grind. The blue power has long been the global hegemon, but their power is on the wane and now it’s time to take your rightful place as a global leader. You do not want to directly confront the blue power, but you are happy to take any opportunity to make the blue power look weak and impotent. Your proxy falls in your exclusive sphere of influence, and their government is generally pliable to your demands. The red proxy is more concerned with gaining control over the blue proxy than supporting you on the world stage, but they rarely go against you. Human rights are not your primary concern because political control is far more important than civil liberty, and also because the blue power uses so-called “human rights” as a smokescreen to justify their incessant meddling in your internal affairs.

Card play script:

Card Number + Card Name + your Justification



RISK TOLERANCE

You and your proxy can tolerate up to **8** risk points per turn. Risk points are calculated by adding the risk values for all capability cards played by you and your proxy.

WINNING CRITERIA

Your final score is your total Influence minus your risk.

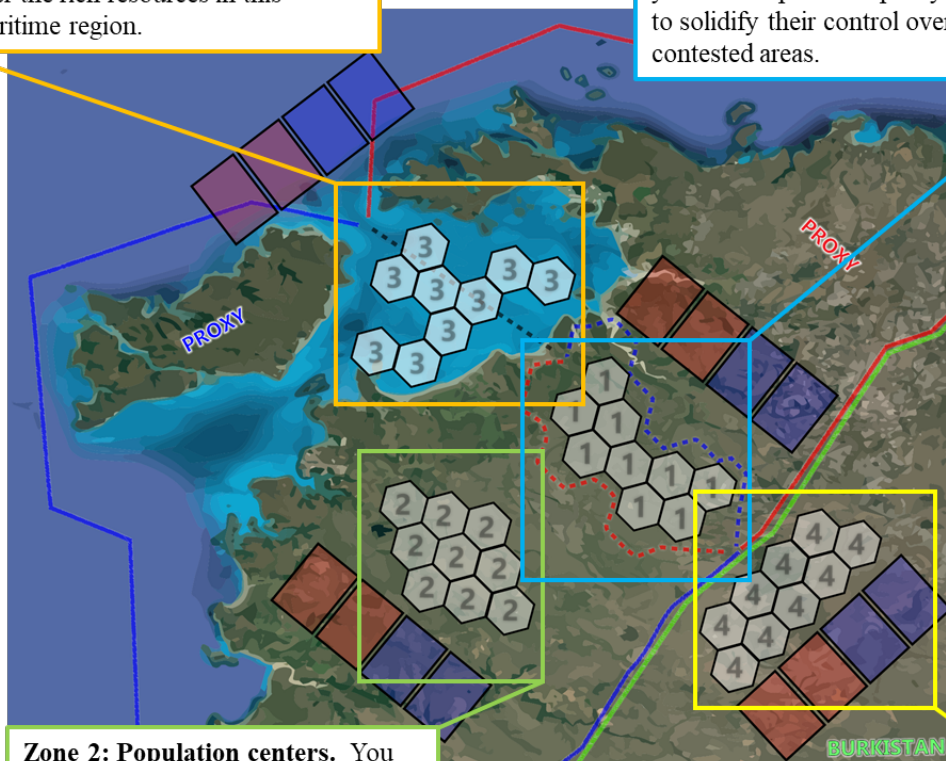
STRONG WIN: If your score is greater than the blue power and the red proxy has more control than the blue proxy.

WEAK WIN: If your score is greater than the blue power and your proxy does not have more control than the blue proxy.

RED POWER

Zone 3: Maritime. A tangled mess of EEZs and small islands intertwine the interests of you, your proxy, and the blue proxy. Blue continues to meddle in the region, despite having no justifiable reason for intervention. Your goal is to establish your control over the rich resources in this maritime region.

Zone 1: Border Dispute. The border between the red and blue proxy is ill-defined and poorly controlled. You don't want to see a war erupt between the proxies, but you will help the red proxy attempt to solidify their control over contested areas.



Zone 2: Population centers. You are working through the red proxy to destabilize the blue proxy government and incite civil unrest. A weak and dysfunctional government in the blue proxy is proof that democracy is ineffective. Plus, weakening the blue proxy makes the blue power look weak, and helps make your ally, the red proxy, stronger in comparison.

Zone 4: VEO. The country of Burkistan is a dysfunctional mess and a rising VEO promises to fill the vacuum created by Burkistan's incompetent government. Red and red proxy are conducting a combined operation, working adjacent to a blue and blue proxy operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue power interests are aligned, the underlying tensions remain between the powers and their proxies.

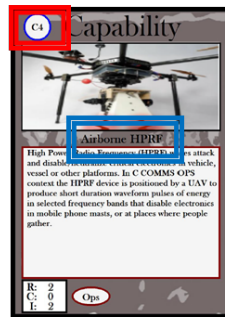
RED PROXY

Inspiration: Cambodia, Belarus, Hezbollah

- **OBJECTIVE:** Gain control over the blue proxy
- **Secondary Objectives:**
 - Advance your border
 - Destabilize the blue proxy government
 - Defeat the VEO
- **Background:** You are a smaller country geographically adjacent to the red power. You have your own proud history and heritage, but you understand the wisdom of aligning yourself with the interests of the red power, who is your primary benefactor. Still, you have your core interests to protect, and you aren't really interested in the red power's ambitions. You will support them so long as you can pursue your own interests first, and don't mind irritating the red power, as long as it's not to the point where they stop supporting you. Your primary concern is the blue proxy, you have a long historical animosity towards them, and frankly, their right to exist as an independent country is questionable. Your overriding goal is to gain control over the blue proxy, at any cost. You are totally unconcerned with human rights.

Card play script:

Card Number + Card Name + your Justification



RISK TOLERANCE

You and the Red Power can tolerate up to **8** risk points per turn. Risk points are calculated by adding the risk values for all capability cards played by you and the Red Power.

WINNING CRITERIA

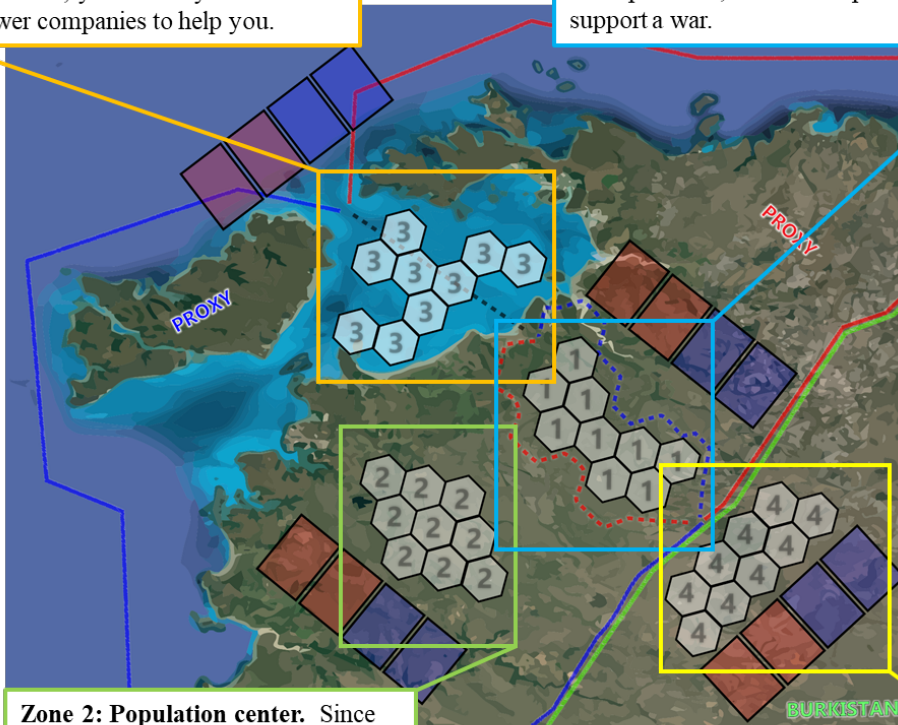
STRONG WIN: Red hexes outnumber blue hexes and the Red power influence is greater than blue power influence.

WEAK WIN: Red hexes outnumber blue hexes, but the blue power has more influence than red power.

RED PROXY

Zone 3: Maritime. A tangled mess of EEZs and small islands intertwine the interests of you, the blue proxy, and the red power. Your goal is to establish your control over as many resources as possible, as you don't have the technology to fully exploit your EEZ, you will rely on Red Power companies to help you.

Zone 1: Border Dispute. The internationally recognized border between you and the blue proxy is totally illegitimate. You want to restore the legitimate historical boundary between your countries. You would be willing to go to war, but you know the blue proxy is more powerful, and the red power won't support a war.



Zone 2: Population center. Since you can't go to war with the blue proxy, the next best thing is to subvert their government and incite civil unrest. There is a small enclave in the blue proxy capital whose citizens are the same ethnicity as the red proxy. You can use them to undermine the government of the blue proxy.

Zone 4: VEO. The country of Burkistan is a dysfunctional mess and a rising VEO promises to fill the vacuum created by Burkistan's incompetent government. Red and red proxy are conducting a combined operation, working adjacent to a blue and blue proxy operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue power interests are aligned, the underlying tensions remain between the powers and their proxies.

BLUE POWER

Inspiration: USA

- **OBJECTIVE:** Gain an influence advantage over the Red power.
- **Secondary Objectives:**
 - Defeat the VEO
 - Assist the blue proxy gain control over the red proxy
- **Background:** You are the long time global hegemon, but the red power's growing influence has caused them to openly challenge the rules based international order you created. You cannot confront the Red Power directly, but you will make every effort to counter their aggressive posture. The red power is supporting the Red Proxy's efforts to undermine the legitimate government of your ally, the Blue Proxy. The blue proxy is your ally, and you generally work very well together, but occasionally the Blue Proxy may pursue their own interests at your expense. As a global leader and standard-bearer, the protection of human rights is very important to you.

Card play script:

Card Number + Card Name + your Justification



RISK TOLERANCE

You and your proxy can tolerate up to **6** risk points per turn. Risk points are calculated by adding the risk values for all capability cards played by you and your proxy.

WINNING CRITERIA

Your final score is your total Influence minus your risk

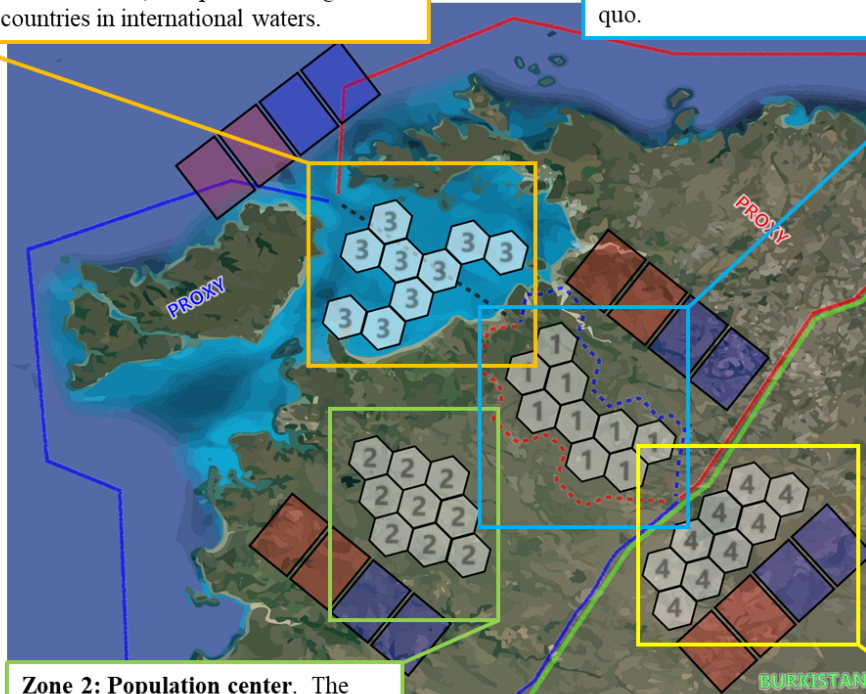
STRONG WIN: If your score is greater than the red power and the blue proxy has more control than the red proxy.

WEAK WIN: If your score is greater than the red power and your proxy does not have more control than the red proxy.

BLUE POWER

Zone 3: Maritime. A tangled mess of EEZs and small islands intertwine the interests of the Red Power, the Red proxy, and the Blue proxy. The Red Power is attempting to use their influence over the Red Proxy to establish undisputed control of the region, and access to its rich natural resources. Your goal is to help the Blue Proxy maintain control of its EEZ, and protect the rights of all countries in international waters.

Zone 1: Border Dispute. The border between the red and blue proxy is ill-defined and poorly controlled. You don't want to see a war erupt between the proxies, but you will help the blue proxy defend its borders and maintain the status quo.



Zone 2: Population center. The Red Power is working through the red proxy to destabilize the blue proxy government. As your ally and a fellow democracy, it is in your interest to help the Blue Proxy establish political control of their city and minimize the damage caused by Red Proxy's subversive elements.

Zone 4: VEO. The country of Burkistan is a dysfunctional mess and a rising VEO promises to fill the vacuum created by Burkistan's incompetent government. Red and red proxy are conducting a combined operation, working adjacent to a blue and blue proxy operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue power interests are aligned, the underlying tensions remain between the powers and their proxies.

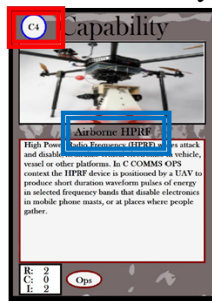
BLUE PROXY

Inspiration: American Allies

- **OBJECTIVE:** Gain control over the red proxy
- **Secondary Objectives:**
 - Protect your sovereignty
 - Maintain the status quo on the border and in your EEZ
 - Defeat the VEO
- **Background:** You are a smaller democratic country, and a proud member of the Blue Power's network of alliances. You are generally aligned with Blue Power in ideology and you realize you have a stake in the current international system. You still place your interests as the top priority, and your key interest is gaining control over the Red Proxy. You have a long historical animosity towards the Red Proxy, and the Red Proxy is actively working to destabilize your government, steal your resources, and re-draw the border. You must do what it takes to protect yourself against Red Proxy's predations. You are concerned with human rights, because it is the right thing to do and because Blue Power's support is contingent on your human rights record, but your fight against the Red Proxy is existential, so sometimes operational concerns outweigh human rights issues.

Card play script:

Card Number + Card Name + your Justification



RISK TOLERANCE

You and the Blue Power can tolerate up to **6** risk points per turn. Risk points are calculated by adding the risk values for all capability cards played by you and the Blue Power.

WINNING CRITERIA

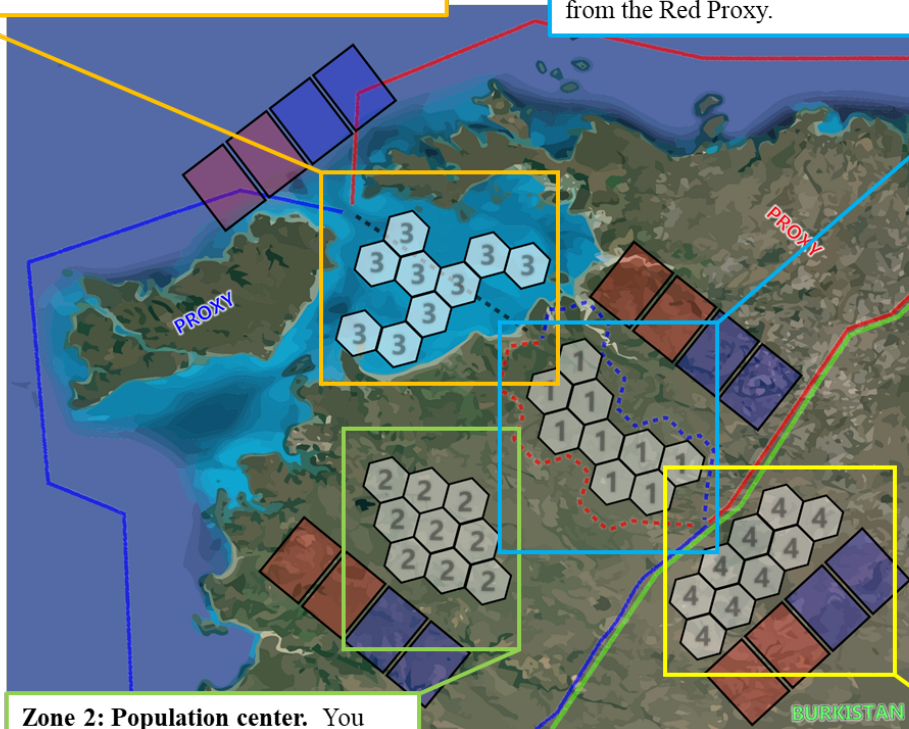
STRONG WIN: Blue hexes outnumber red hexes and the blue power has greater influence than the Red power.

WEAK WIN: Blue hexes outnumber red hexes, but the red power has more influence than blue power.

BLUE PROXY

Zone 3: Maritime. A tangled mess of EEZs and small islands intertwine the interests of you, the Red proxy, and the red power. Your goal is to maintain control of your EEZ and protect your natural resources from exploitation by the Red Power and the Red Proxy. You also support the Blue Power's efforts to maintain fair use of international waters.

Zone 1: Border Dispute. There is an internationally recognized border between you and the Red Proxy, but the Red Proxy refuses to acknowledge the status quo. You would be willing to go to war to defend your border, but you know the blue power would not support you. Still you can count on the blue power to support you against incursions from the Red Proxy.



Zone 2: Population center. You have a democratically elected government, but like many democracies, intense animosity can develop between political parties. There is a small enclave in the blue proxy capital whose citizens are the same ethnicity as the red proxy. The Red Proxy is using them to undermine your democratically elected government.

Zone 4: VEO. The country of Burkistan is a dysfunctional mess and a rising VEO promises to fill the vacuum created by Burkistan's incompetent government. Red and red proxy are conducting a combined operation, working adjacent to a blue and blue proxy operation, to destroy the VEO and prevent the destabilization of the region. While in theory the red and blue power interests are aligned, the underlying tensions remain between the powers and their proxies.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Appleget, J., R. Burks, F. Cameron “The Craft of Wargaming: A Detailed Planning Guide for Defense Planners and Analysts,” Naval Institute Press, September 2020.

DoD Directive 3000.03E, DoD Executive Agent for Non-Lethal Weapons (NLW), and NLW Policy, 25 April 2013.

MAJ Edwards, C., MAJ Raub, J., MAJ Rose, M., MAJ Paulo, A., CDR Mendieta, M., Capt Minnick, C., Final Report for JIFCO from NPS Wargame June 2022.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California
3. Research Sponsored Programs Office, Code 41
Naval Postgraduate School
Monterey, CA 93943