NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**AN INFORMATION WARFARE
THEORY OF VICTORY**

by

Don H. Gomez

December 2023

Thesis Advisor: Shannon C. Houck
Second Reader: Clint Eklund (USASOC)

THIS PAGE INTENTIONALLY LEFT BLANK

13. ABSTRACT (maximum 200 words)

This thesis explores the challenge of assessment in information warfare and its relationship to perceptions of "winning" in the information environment. It argues that misaligned incentives and organizational biases lead to inadequate assessments that fail to meet the knowledge demands of stakeholders. An information warfare theory of victory is introduced that argues the concepts of Vision, Truth, Perception, and Volume should be leveraged to achieve the desired information goals. An information wargame and associated simulation was developed to test the theory, which indicated that volume plays a key role in determining subjective perceptions of victory. The thesis makes three key recommendations: 1) leaders with responsibility for information activities should incentivize volume, 2) alternative methods of demonstrating success should be employed and experimented with, and 3) the friendly-force effects of information activities should be included in comprehensive information assessments. This thesis recognizes the inherent challenges in implementing the recommendations and calls for bureaucratic bravery to overcome them.

i

THIS PAGE INTENTIONALLY LEFT BLANK

AN INFORMATION WARFARE THEORY OF VICTORY

Don H. Gomez
Major, United States Army
BA, City College of New York, 2010
MA, University of London, 2011

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF SCIENCE IN INFORMATION STRATEGY AND POLITICAL
WARFARE**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2023**

Approved by: Shannon C. Houck
                Advisor

                Clint Eklund
                Second Reader

                Carter Malkasian
                Chair, Department of Defense Analysis

iii

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This thesis explores the challenge of assessment in information warfare and its relationship to perceptions of "winning" in the information environment. It argues that misaligned incentives and organizational biases lead to inadequate assessments that fail to meet the knowledge demands of stakeholders. An information warfare theory of victory is introduced that argues the concepts of Vision, Truth, Perception, and Volume should be leveraged to achieve the desired information goals. An information wargame and associated simulation was developed to test the theory, which indicated that volume plays a key role in determining subjective perceptions of victory. The thesis makes three key recommendations: 1) leaders with responsibility for information activities should incentivize volume, 2) alternative methods of demonstrating success should be employed and experimented with, and 3) the friendly-force effects of information activities should be included in comprehensive information assessments. This thesis recognizes the inherent challenges in implementing the recommendations and calls for bureaucratic bravery to overcome them.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AA	Actions and activities
ARLIS	Applied Research Laboratory for Intelligence and Security
CNA	Center for Naval Analyses
CRS	Congressional Research Service
CTC	Combat Training Center
DOD	Department of Defense
fMRI	Functional Magnetic Resonance Imaging
FICINT	Fictional Intelligence
GWOT	Global War on Terrorism
GTOV	General Theory of Victory
IW	Information Warfare
JP	Joint Publication
JSOU	Joint Special Operations University
KPI	Key Performance Indicator
MBO	Management by Objectives
MMM	Marketing Mix Model
MOE	Measures of Effectiveness
MOP	Measures of Performance
OAI	Operation, Activity, Investment
PTOV	Proposed Theory of Victory
ROI	Return on Investment
SME	Subject Matter Expert
SOCCENT	Special Operations Command Central
SOCOM	Special Operations Command
SOV	Share of Voice
TA	Target Audience
TOV	Theory of Victory
US	United States
WEIRD	Western, Educated, Industrialized, Rich, Democratic

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

A.   RESEARCH QUESTION AND KEY RECOMMENDATION

How do we know if we're winning in the information environment? Traditionally, information planners and practitioners have attempted to answer this question by demonstrating success through assessment. Yet assessment of the effectiveness of information operations is problematic due to the enduring challenge of accurately measuring human emotions, thoughts, and behaviors. This research finds that "winning" in the information environment is not determined through assessment but is instead a subjective belief held among various stakeholders in response to what they see and sense. Moreover, volume contributes most to subjective perceptions of winning. To achieve victory, information planners and practitioners should execute information warfare activities in accordance with a theory of victory and indicate success using proxy measures when clear assessments are not feasible.

B.   HYPOTHESIS: AN INFORMATION WARFARE THEORY OF VICTORY

In crafting successful information warfare campaigns, planners and practitioners should integrate a theory of victory which begins with conceptualizing a *vision* for how future information environments look in a "win" condition. With a *vision*, actions and activities should adhere to the principles of *truth* (do not lie), *perception* (control for errors), and *volume* (repetition plus frequency) to achieve the desired effects, while taking into account regional and contextual considerations.

C.   RESEARCH DESIGN: WARGAME AND SIMULATION

To test the theory of victory, a fully interactive information warfare wargame and accompanying simulation were developed to explore two questions 1) What actions and activities contribute to people's sense of "winning?" 2) How do interactions between players affect their information strategy?

D.   FINDINGS

The wargame and simulation found that volume consistently corresponded with perceptions of "winning" among stakeholders. Additionally, findings indicate that there are friendly force effects of information warfare activities that often go ignored when considering the success of information warfare campaigns. For example, successfully executing information warfare activities may raise the morale of friendly forces. While the scope and scale of the wargame do not allow these findings to be generalizable, they offer a pathway for future research and experimentation.

E.   RECOMMENDATIONS

This research offers three broad recommendations:

1.   Senior leaders with oversight and supervision of information warfare activities should consider incentivizing volume in accordance with a theory of victory instead of raw effectiveness.

2.   Information warfare planners and practitioners should consider the friendly force effects of information actions and activities in comprehensive assessments.

3.   Information warfare planners and practitioners should experiment with alternative means of expressing success beyond measure of performance (MOP) and measure of effectiveness (MOE).

F.   SIGNIFICANCE AND CHALLENGES

If these recommendations are implemented, information warfare forces stand to benefit from the value gained from an enhanced ability to experiment and iterate in the information space while delivering "wins" to relevant stakeholders. However, this research acknowledges the challenge in untethering large bureaucracies from seeking objective proof of success before adjusting policies or committing additional resources. Therefore, implementing the suggested recommendations requires bravery and an adventurous spirit among policymakers to be successful.

ACKNOWLEDGMENTS

Thank you first and foremost to my advisors, Dr. Shannon Houck and Clint Eklund. This was a challenging project, and your sustained belief and interest kept me focused and inspired. Your advice—both in the direction of this research and the manner of its presentation—was paramount. That said, any errors are mine alone.

I am indebted to Dr. Joyce Sampson of the Naval War College who introduced me to theory of victory studies and lit a way towards pursuing this research.

The wargame would not have been possible without the sustained attention and assistance from Dr. Robert Burks and my numerous conversations with the subject matter experts at ARLIS. The challenges and advice from Matt Venhaus, Dr. Andrew Whiskeyman, Dr. Angie Mallory, and Michael Matthaeus were invaluable and significantly improved the realism (and fun) of the game. My classmates Rachel Howell and Rob Leisinger suffered through numerous rounds of playtesting and discussion to get the game to a playable state—thank you.

The staff and faculty in the Defense Analysis Department eagerly supported this research and were particularly helpful with assisting with presenting initial findings at both the Symposium on Information Strategy and Political Warfare (SISPOW) and the 12th Annual Information Operations and Electronic Warfare Symposium. Particular thanks to Dr. Carter Malkasian, Brian Greenshields, and Ryan Maness for your tireless encouragement and support, and Dr. Christopher Paul for allowing me the space to run the wargame.

Thank you to my fellow students (and family members) who endured my endless tirades on "winning," measurements, metrics, and assessments, and for nodding enthusiastically when I offered my ideas.

Finally, a special thank you to those who have stated categorically that we are "losing" in the information environment. You inspired this research, and my hope is that one day you might say the opposite when you see it.

THIS PAGE INTENTIONALLY LEFT BLANK

I.   INTRODUCTION

It has become nearly ubiquitous in national security circles that the United States is "losing" the information war against its adversaries. Despite larger budgets, incredible talent, motivated personnel, and a desire to go on the offensive in the information space, there remains a sense that the U.S. is continuously being outmaneuvered in the same arena—too little, too timid, and too late. Conversely, policymakers, military leaders, and academics routinely highlight the apparent effectiveness of adversarial information activities while remaining skeptical of the ability of the U.S. to similarly demonstrate success. These differential perceptions represent a paradox: whereas there is consensus that U.S. adversaries are "winning" in the information space, simultaneously there is a struggle to understand how friendly information efforts may be effective.

Information warfare professionals face a long-standing and significant challenge in conveying whether their activities are successful or not. This is partly attributable to a bureaucratic culture and incentive structure oriented towards short-term, observable results as opposed to the longer-term, subtle effects that influence and information activities require. Current joint doctrine necessitates that information warfare practitioners demonstrate that their operations create demonstrable effects—the ultimate aim of any operation, activity, or investment (OAI)—with future resources and permissions at stake. Unlike other military operations, information professionals must provide evidence of *future* effectiveness prior to execution. Consequently, a potentially effective information operation may be derailed before execution due to an inability to accurately forecast measurement. There may be instances, for example, where evidence exists that a certain technique or message is likely to have a powerful and desired effect on an audience, but due to an inability to measure or assess the potential outcome, there may be reluctance to approve the effort. Compare this with the approval to conduct a kinetic strike, where the outcome is often much easier to measure in terms of destroyed or damaged targets. This phenomenon risks breeding skepticism among leaders who might discount the role of information warfare, and timidity in practitioners who may opt to conduct information warfare activities that are easy to measure, but not necessarily effective.

1

A. THESIS PURPOSE AND RESEARCH OBJECTIVE

This thesis seeks to answer the question: *How do we know if we're winning in the information environment?* The purpose is to propose a theory of victory for information warfare that provides practitioners and stakeholders an updated lexicon for understanding and demonstrating success in the information environment. If widely implemented, this theory has the potential to untether information warfare practitioners from unproductive analysis that stymies operations while increasing the likelihood of delivering the effects that stakeholders demand.

B. METHODOLOGY

Phase 1 of this research draws from existing research on theory of victory and current information warfare doctrine and assessment practices to form the foundation of a new proposed theory of victory for information warfare. In phase 2, I test this theory of victory for information warfare through a conceptual wargame exercise. Additionally, an appendix to this research provides a menu of alternative measures that practitioners can use to demonstrate success in the information environment.

C. ORGANIZATION OF THESIS AND CHAPTER REVIEW

This thesis is divided into five chapters. Chapter I discusses the problem, research question, and methodology. Chapter II consists of a literature review addressing relevant definitions, theory of victory research, and the doctrine and culture of assessments, measurements, and metrics. Chapter III applies theory of victory research to information warfare, integrating communication and influence theories to arrive at a proposed theory of victory for information warfare along with alternative measures of demonstrating success (compiled in Appendix A). Chapter IV discusses the purpose, design, execution, and results of the wargame exercise that tests the proposed theory of victory. Chapter V concludes the thesis with a summary of findings, recommendations for implementation, and opportunities for future research.

II.   LITERATURE REVIEW

Half the money I spend on advertising is wasted; the trouble is I don't know which half.[1]

—John Wanamaker

This literature review is organized into three subsections: a) why information warfare?, b) theory of victory studies, and c) assessments, measurements, and metrics. In each section, I review the associated literature and discuss how they interrelate.

A.   WHY INFORMATION WARFARE?

One of the primary challenges in discussing information warfare and attempting to propose a theory of victory is the constant struggle to define it.[2] Some might point to this fact as the chief issue in determining success—without an agreed upon definition of what it is, there is little hope for achieving progress. This research argues that settling on a precise definition is important, but ultimately unnecessary. The term and its associated derivatives is and has been amorphous and ill-defined since its inception and there is no reason to believe that this will change or that reaching consensus on a definition will satisfy stakeholders inside and out of national security channels.[3] However, a survey of the literature on defining information warfare across multiple disciplines guides the subsequent research and coalesces around satisfactory definitions.

The Department of Defense (DOD) does not officially define information warfare. This has led to confusion because the term is ubiquitous in the Joint Force and is often used interchangeably with other ill-defined or adjacent terms like *information operations,*

---

[1] George Bradt, "Wanamaker Was Wrong -- The Vast Majority Of Advertising Is Wasted," Forbes, September 14, 2016, https://www.forbes.com/sites/georgebradt/2016/09/14/wanamaker-was-wrong-the-vast-majority-of-advertising-is-wasted/.

[2] See Sally White's research which focuses on the history of Army information operations: Sarah P. White, "The Organizational Determinants of Military Doctrine: A History of Army Information Operations," Texas National Security Review, January 5, 2023, https://tnsr.org/2023/01/the-organizational-determinants-of-military-doctrine-a-history-of-army-information-operations/.

[3] See "Joint Force Transition From Information Operations to Operations in the Information Environment:" Joint Chiefs of Staff, *Information in Joint Operations* (Washington, D.C.: Joint Chiefs of Staff, 2022), I–9.

psychological warfare, propaganda, hybrid warfare, and others. The constant defining and redefining of terms and concepts, to include the adoption of *operations in in the information environment* as the most recent working term, continues to challenge the field.[4] A December 2022 Congressional Research Service (CRS) primer on *Information Operations* leads with a working definition of information warfare, which in turn references an earlier CRS report on the subject.[5] Joint Publication 3-04 *Joint Operations in the Information Environment* (JP 3-04) acknowledges information warfare as a term that is used in "strategic documents and service publications" and defines the term similarly to the CRS report.[6] A companion graphic associated with the release of JP 3-04 further acknowledges the 2018 CRS *Information Warfare Report* as the source for the working definition of information warfare.[7] One of the challenges of using the term *information warfa*re is that joint doctrine allows for only two types of warfare: traditional and irregular.[8] The unofficial definition of the term presented in JP 3-04 categorizes information warfare as "the range of offensive and defensive efforts that use information across the competition continuum to exploit the information environment against adversaries, to inform public opinion, and to compel decision makers to take certain actions." The same definition further scopes information warfare in its military context: "The U.S. military contributes to information warfare by deliberately leveraging the inherent informational aspects of activities and by conducting operations in the information environment."[9] The original CRS report from which this definition is derived defines information warfare as "the range of military and government operations to protect and

---

[4] For example, the USMC issues a memorandum in January 2023 canceling a previous memorandum which attempted to define information related terms in order to satisfy the new definitions established in JP 3-04. K.S. Heckl, "Cancellation of the January 2020 Marine Corps Joint Memorandum on Definitions for Information Related Terms" (official memorandum, Washington, D.C.: United States Marine Corps, 2023).

[5] Catherine Theohary, "Defense Primer: Information Operations," In Focus (Congressional Research Service, December 9, 2022), https://crsreports.congress.gov/product/pdf/IF/IF10771.

[6] Joint Chiefs of Staff, *Information in Joint Operations*, III–25.

[7] See "Doctrinal Logic Information in Joint Operations": John Bicknell et al., "The Cognitive Crucible Episode #125 Journey from Conception through JP 3-04," podcast, The Cognitive Crucible, accessed March 27, 2023, https://information-professionals.org/episode/cognitive-crucible-episode-125/.

[8] Joint Chiefs of Staff, *Information in Joint Operations*, III–25.

[9] Joint Chiefs of Staff, III–25.

exploit the information environment."[10] Thus, there is an inherent recognition in doctrine that information warfare is a national activity that functions above the DOD-level and the DOD contributes to information warfare through its activity and cooperation with other agencies.[11]

The long-standing confusion on defining information warfare or any of its adjacent terms has led to significant scholarship on its development, origins, and shifting definitions. Army Cyber Officer, Sally White, lays out exhaustively how the concept of information operations has frequently shifted and been redefined within the United States Army from terms like *Command and Control Warfare* to *Information Warfare* to *Inform and Influence Activities* and more.[12] Air Force officer Lt Col Dan "Plato" Morabito argues that the term needs redefinition and offers "Information warfare is the manipulation of knowledge through access, trust, and cognition to change the attitudes or behaviors of an individual or system."[13] The arc of this scholarship indicates an acknowledgment of the importance of information and the enduring difficulty—and interest—in defining it.

Outside of the military, scholarship has offered definitions of information warfare explicitly and implicitly. Dr. Chris Paul and others at RAND acknowledge the constant redefining of the term and offered their own simple definition: "Information warfare is conflict between two or more groups in the information environment."[14] Matt Armstrong, a researcher who specializes in information warfare—who does not prefer the term because

---

[10] Catherine Theohary, "Information Warfare: Issues for Congress," *Information Warfare*, March 5, 2018, 1.

[11] Part of the problem with the term "information warfare" is that warfare tends to infer that it must be a strictly military activity. However, many in the field use the term in the same manner as "political warfare" which was coined by George Kennan in his description of Soviet activities against the West in his "long telegram." See: George Kennan, "Organizing Political Warfare" (official memorandum, Washington, DC: Department of State, 1948); "Crafting an Information Warfare and Counter-Propaganda Strategy for the Emerging Security Environment: Hearing before the Committee on Armed Services, 115th Congress" (Washington, D.C., March 15, 2017), https://www.govinfo.gov/content/pkg/CHRG-115hhrg25048/html/CHRG-115hhrg25048.htm.

[12] White, "The Organizational Determinants of Military Doctrine," 76.

[13] Daniel Morabito, "National Security and the Third Road Threat: Toward a Comprehensive Theory of Information Warfare," *Air and Space Power Journal*, Fall 2021, 30.

[14] Isaac Porche, Christopher Paul, and Michael York, *Redefining Information Warfare Boundaries for an Army in a Wireless World* (Santa Monica, CA: RAND, 2013), 14.

5

of its erratic definitions—understands that it is an enduring term of art and conceptualizes information warfare as a subset of political warfare.[15] This is similar to Heritage Foundation researcher Dean Cheng who characterizes information efforts by the Chinese as political warfare efforts that seek to achieve information dominance.[16] Others in the field use the term without specifically defining it, instead focusing on aspects within it or adjacent to it, like influence operations, misinformation, disinformation, or computational propaganda.[17]

The term appears more loosely in journalism, where it has been used to describe activities ranging from leaflet drops to cyber-attacks to domestic conspiracy theories.[18] The rise of the terms *disinformation* and *misinformation* in political discourse coupled with Russia's interreference in the 2016 U.S. elections through the use of social media has likewise led to a rise in the use of the term information warfare across media.[19] While rarely defined, it is often deployed in a self-evident fashion where the activity described or referenced demonstrates an aspect of information warfare, adding to an already complex constellation of related activities.

While the DOD lacks a firm doctrinal definition of information warfare, it offers an unofficial definition that marks it as an instrument of national power—it is the

---

[15] See Matt Armstrong's discussion of the term and adjacent terms: "Crafting an Information Warfare and Counter-Propaganda Strategy for the Emerging Security Environment: Hearing before the Committee on Armed Services, 115th Congress."

[16] Dean Cheng, "Chinese of Views of Information and Future Warfare," video, 52:04, Purdue University, February 15, 2023, https://www.cerias.purdue.edu/assets/video/secsem/secsem_20230215.mp4.

[17] See the work of the Stanford Internet Observatory, for example: Josh A Goldstein et al., "Generative Language Models and Automated Influence Operations: Emerging Threats and Potential Mitigations," *Internet Observatory*, January 2023, https://cyber.fsi.stanford.edu/io/publication/generative-language-models-and-automated-influence-operations-emerging-threats-and.

[18] Thom Shanker and Eric Schmitt, "THREATS AND RESPONSES: HEARTS AND MINDS; Firing Leaflets and Electrons, U.S. Wages Information War," *The New York Times*, February 24, 2003, sec. World, https://www.nytimes.com/2003/02/24/world/threats-responses-hearts-minds-firing-leaflets-electrons-us-wages-information.html; Nina Jankowicz, "Opinion | The Only Way to Defend Against Russia's Information War," *The New York Times*, September 25, 2017, sec. Opinion, https://www.nytimes.com/2017/09/25/opinion/the-only-way-to-defend-against-russias-information-war.html; Richard A. Falkenrath, "Opinion | From Bullets to Megabytes," *The New York Times*, January 27, 2011, sec. Opinion, https://www.nytimes.com/2011/01/27/opinion/27falkenrath.html.

[19] For more on the growth of "Big DisInfo" see: Joseph Bernstein, "Bad News: Selling the Story of Disinformation," *Harper's Magazine*, August 9, 2021, https://harpers.org/archive/2021/09/bad-news-selling-the-story-of-disinformation/.

6

"actioning" of the "I" in DIME.[20] According to doctrine, the joint force then conducts information warfare within its own framework. Academia takes a broader view, largely in agreement with the current understanding in joint doctrine but overall, less interested in adhering to an ironclad definition, choosing instead to focus on the activity that occurs within and around it. Ironically, the amorphous way the term is used broadly within the greater media may hold the key in assisting in understanding a theory of victory. The continuing difficulty in defining information warfare does not stop commentators from using the term when it seems appropriate, and this in turn points towards notions of "winning" and "losing" in the information environment. Academics, journalists, and commentators who sense that something is shifting in the information environment are not constrained by doctrine or traditional notions of military success. Like other aspects of subjective information, the audience might just know it when they see it.[21]

B.   THEORY OF VICTORY STUDIES

It has become seemingly ubiquitous within national security circles to claim or to hear that the West generally, and the U.S. specifically, is "losing" the information war. This claim is often made self-evidently without evidence outside of the assertion. Former Special Operations Command—Central (SOCCENT) Commander Lieutenant General (Ret) Michael Nagata put it this way during a conference on the topic: "We're not even holding our own. We're being defeated. We're being outmaneuvered, we're being outflanked, we're being out persuaded."[22] A simple internet search of "information

---

[20] The DIME model is a popular construct thought of as the elements of national power: Diplomacy, Information, Military, and Economic. Arguments are often made that the State Department "owns" diplomacy while the Department of Defense "owns" the military, leaving the other two elements orphaned. Matt Armstrong argues that these are not elements of national power, but rather elements of bureaucracy, which is a more accurate way to describe them. Joint Special Operations University, "What Is Strategic Influence?," video, 51:58, YouTube, February 28, 2023, https://www.youtube.com/watch?v=_Cu_rMRvB7U.

[21] Supreme Court Justice Potter Stewart famously opined that when it comes to identifying hardcore pornography, which was difficult to define. For more, see: Peter Lattman, "The Origins of Justice Stewart's 'I Know It When I See It,'" *Wall Street Journal*, September 27, 2007, sec. Law Blog, https://www.wsj.com/articles/BL-LB-4558.

[22] Mark Pomerleau, "Why Is the United States Losing the Information War?," C4ISRNet, October 5, 2020, https://www.c4isrnet.com/information-warfare/2020/10/05/why-is-the-united-states-losing-the-information-war/.

warfare" and "losing" uncovers numerous articles featuring senior military leaders, politicians, and academics who make similar claims—that the West is losing and its adversaries are winning in information warfare.[23] At the same time, it is rare that systematic analysis is leveraged to prove this to be true.[24] Rather, sensational events in the information environment which dominate a news cycle with no "counter" seems to lend towards the notion of "losing." Despite the lack of clear evidence, the perception seems to be widespread and generally accepted.[25]

Without a concept of what winning might look like, it is unlikely that the U.S. will stumble upon victory in information warfare. To change the status quo requires an information warfare theory of victory. Theory of victory research is a subfield of war and strategy studies and may hold clues towards building a better understanding of what achieving victory—or even making steps towards victory—might look like. Two prominent scholars, Bradford A. Lee (Naval War College) and J. Boone Bartholomees (Army War College), have explored and developed theory of victory concepts that offer guidelines that might inform a theory of victory for information warfare. Likewise, other researchers have broached the topic with claims and evidence that might be integrated into a comprehensive theory. Examining theory of victory research and its connections to concepts in information warfare provides a starting point for developing a potential theory of victory for information warfare.

Lee offers two modern definitions for a theory of victory. The first states that a theory of victory represents "the assumptions that strategists make about how the execution

[23] See for example Rep. Seth Moulton (D-Mass). Mark Pomerleau, "DOD Making Progress in Information Operations but More Improvement Is Needed, Experts Say," DefenseScoop, November 4, 2022, https://defensescoop.com/2022/11/04/dod-making-progress-in-information-operations-but-more-improvement-is-needed-experts-say/.

[24] See Eady et al. Despite widespread media coverage of Russian interference in the 2016 U.S. Presidential election, it is difficult to determine the extent to which that interference had demonstrable effects on voting behavior. Gregory Eady et al., "Exposure to the Russian Internet Research Agency Foreign Influence Campaign on Twitter in the 2016 U.S. Election and Its Relationship to Attitudes and Voting Behavior," *Nature Communications* 14, no. 1 (January 9, 2023): 62, https://doi.org/10.1038/s41467-022-35576-9.

[25] Todd Lopez, "Low-Level Commanders Need Authority to Counter Information Operations, Northcom Leader Say," U.S. Department of Defense, September 22, 2021, https://www.defense.gov/.

of the military operations that they are planning will translate into the achievement of the political objectives that they are pursuing."[26] These *assumptions* become the theory underpinning military activities—there is an inherent admission in the theory that it cannot be proven certain—thus it being a theory and not a fact. These assumptions take the form of the military and political interactions between the actors and imagined end scenarios that would lead to victory. The second definition defines theory of victory as the "analysis of the *mechanisms* by which the use of instruments of military power transmit [ted] into political results." Thus, there is an approach that relies on *assumptions* concerning friendly actions and their potential effects and an approach that analyzes the *mechanisms* of a regime and how they might be transmitted to political results. Important to both definitions is an emphasis on the potential *strategic effects* activities might incur to reach a given objective.

Lee defines *strategic effects* as "consequences of military courses of action that have a significant impact on the thinking and behavior of key players in the enemy political system—i.e., the players who will make the decision to give up, go away, or go down swinging."[27] Lee admits that outside of "first order military effects"—like killing enemy troops—determining to what degree these effects are accomplishing anything is extremely difficult. Therefore, to truly be effective he argues, we need to make *assumptions* about what political decisions key adversaries might make in response to our military activity—those decisions and changes is what Lee calls the *dynamic*. Thus, Lee's theory of victory consists of the *assumptions* of what *strategic effects* military activity will have that change the *dynamic* of the adversary in a manner that is advantageous.

Additionally, and relevant to the United States, Lee emphasizes the importance of *incremental dividends* to sustain military activity in a democracy. The unique nature of democracies might require the "need to deliver periodic tactical success or tokens of success that provide morale-boosting evidence that the forces achieving those successes

---

[26] Michael Mooney, "A Military Assessment of the Islamic State's Evolving Theory of Victory," War on the Rocks, June 26, 2017, https://warontherocks.com/2017/06/a-military-assessment-of-the-islamic-states-evolving-theory-of-victory/.

[27] Bradford A. Lee, "Theories of Victory" (Naval War College, Rhode Island, November 22, 2013). Direct quote from accompanying slide deck.

can indeed eventually win the war."[28] Various stakeholders need to see some evidence that progress is being made, otherwise there is a risk of failing to achieve the intended objective.[29]

J. Boone Bartholomees takes a slightly different approach than Lee. Where Lee's approach is prescriptive, Bartholomees goes to great lengths to define what victory and the concept of "winning" means in war at the strategic level. He writes "victory in war is at the most basic level an assessment, not a fact or condition."[30] To achieve victory is to achieve the complete and total political goal that was sought, as assessed by an actor. To be "winning" on the other hand, is to be accruing movement across a scale of success. Here, the distinction between war and warfare is important. To achieve victory in war represents the complete political objective, (as assessed by an actor), whereas victory in warfare is the incremental movement—winning—towards that goal.

Bartholomees offers two important elements that might aid in building an information warfare theory of victory. First, determining final victory is a matter of assessment, not fact.[31] In the United States, he argues that it is the American people, political and military elites, American friends and allies, and world opinion that decides whether victory was attained or not—in that order.[32] Second, he argues the most complete way to achieve victory in warfare is to erode the will of the adversary and identifies "information operations" as the "only method currently available to directly attack will."[33] Echoing other scholars, he also states that the impact of information operations are difficult to determine. Here, we see the importance of information warfare and the very problem—the lack of a theory of victory specific to the form of warfare.

---

[28] Lee.

[29] Lee uses the example of Athens during the Peloppensian War. Lee.

[30] J. Boone Bartholomees, "Theory of Victory," *The U.S. Army War College Quarterly: Parameters* 38, no. 2 (May 1, 2008): 26, https://doi.org/10.55540/0031-1723.2419.

[31] Bartholomees, 26.

[32] Bartholomees, 31.

[33] Bartholomees, 35.

10

While there has been a significant increase in information warfare research—especially surrounding propaganda and misinformation/disinformation studies following the rise of the Islamic State, "fake news" deployed against the United States in the 2016 Presidential election, and Ukrainian information warfare efforts in resisting the 2022 Russian invasion—relatively little research has pointed towards an information warfare theory of victory. One author tackles the problem in a short essay for the *Modern War Institute* that categorizes winning an information war as changing the "direction of messages for a political or military effect."[34] As evidence, the author identifies the point at which the Soviet Union "could no longer propagate credible pro-communist messages" as the moment of victory. This theory of victory offers the possibility of winning the information war in totality, which according to Lee and Bartholomees is suspect. Air Force Lt Col Daniel Morabito also recognizes the lack of a unified theory of victory for information warfare in a paper for *Air and Space Power Journal.* In it, he argues that succeeding in information warfare is dependent on an updated definition and "a new way of conceptualizing IW based on its fundamental elements."[35] Morabito sees information warfare as the conflict that is waged at the intersection of two domains: the cognitive and the electromagnetic spectrum. While Morabito's paper identifies and arranges elements into a taxonomy of information warfare, it does not offer a theory of victory but suggests the taxonomy be adopted as a starting point in the development of doctrine.[36]

Perhaps the most convincing research pointing towards an information warfare theory of victory is titled *How Democracies Can Win the Information Contest* and argues that democracies face unique challenges in waging information warfare which ultimately restricts their options.[37] Chiefly, the authors place a premium on truth-telling in information warfare as opposed to deception and emphasizes that "the very conception of

---

[34] Iain King, "Toward an Information Warfare Theory of Victory," Modern War Institute, October 19, 2020, https://mwi.usma.edu/toward-an-information-warfare-theory-of-victory/.

[35] Morabito, "National Security and the Third Road Threat: Toward a Comprehensive Theory of Information Warfare," 29.

[36] Morabito, 35.

[37] Laura Rosenberger and Lindsay Gorman, "How Democracies Can Win the Information Contest," *The Washington Quarterly* 43, no. 2 (April 2, 2020): 75–96, https://doi.org/10.1080/0163660X.2020.1771045.

the information space as a domain of war is problematic for democracies."[38] This claim is supported by growing skepticism within media studies and journalism concerning efforts to address disinformation.[39] While the authors do not offer a specific and comprehensive theory of victory, they do offer principles that are likely to inform one, including the importance of truth, transparency, reframing, and legal approaches.[40]

There are significant challenges in developing an information warfare theory of victory. The concept of a theory of victory as a standalone theory for warfare is not fully developed or universally understood. Attempting to fashion one for information warfare specifically—a rapidly developing and changing field—has proven difficult by both practitioners and academics. However, the review of the literature identifies areas worth exploring. Lee's theory of victory can be simplified to the *assumptions* about how *strategic effects* will change *dynamics* of the adversary. Together, that constitutes a general theory of victory which could then aid in the development of a strategy. Bartholomees adds to Lee's work in emphasizing the point that victory is not a factual condition but rather a subjective assessment made by various stakeholders. Additionally, both Bartholomees and Lee suggest it may be wiser to seek a "winning" condition rather than a "win" condition, especially regarding information warfare.[41] From within the information warfare community, there is acknowledgement that there is an element missing that bridges the gap from activity to victory. Finally, academics have pointed out that democracies face unique challenges in implementing information warfare, coupled with Lee's prescription of *incremental dividends* that demonstrate success.

---

[38] Rosenberger and Gorman, 76.

[39] Bernstein, "Bad News."

[40] Rosenberger and Gorman, "How Democracies Can Win the Information Contest," 92.

[41] See Footnote 59: "Task Force C defined the Cold War as "every form of military and political conflict short of a general war of global scope with our principal adversary, the USSR itself. In such conflict, it asserted, "one is either winning or losing" – there could be no stable balance or stalemate. Bradford A. Lee, "American Grand Strategy and the Unfolding of the Cold War 1945–1961," in *Successful Strategies: Triumphing in War and Peace from Antiquity to the Present*, ed. Richard Hart Sinnreich and Williamson Murray (Cambridge: Cambridge University Press, 2014), 367, https://doi.org/10.1017/CBO9781107477315.013.

12

C. ASSESSMENTS, MEASUREMENTS, AND METRICS

In the military, there is a simple answer to the question "how do we know if we're making progress?" The answer: we do assessments. From recruiting to combat to readiness, assessment attempts to measure the success or failure across the spectrum of military activities. Joint Publication 5-0 defines assessment as:

> Determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. A continuous process that measures the overall effectiveness of employing capabilities during military operations.[42]

Decision makers use the results of these assessments to determine what next steps are most appropriate to solve a given problem—should an activity be expanded, adjusted, or terminated? The goal is to enhance organizational efficiency and assessments are the means to understanding if that is being accomplished. However, it has become widely acknowledged that this hyperfocus on measurement and quantified, demonstrable outcomes can be counterproductive.[43] This is especially true regarding military operations in the information environment, which face statutory oversight from Congress who has the responsibility to ensure taxpayer money is being spent wisely.[44] Joint and service doctrine provide guidance for conducting assessments and offers techniques and methods for determining the effectiveness of influence activities. While doctrine regarding assessment is robust and well-intentioned, determining the effects of intangible human qualities like thought, attitude, will, or morale have proven to be unreliable at best and pseudo-scientific at worst.[45] A particularly troublesome fact is that understanding *how* to effectively measure

---

[42] Joint Chiefs of Staff, *Joint Planning*, JP 5-0 (Washington, D.C.: Joint Chiefs of Staff, 2020), VI–1.

[43] Jody Daniels, "Changing Culture: Moving from Metrics to Readiness," *United States Army Reserve*, August 2022, https://www.usar.army.mil/Portals/98/Documents/CAR/Changing%20Culture%20FINAL%2004052022.pdf?ver=Kz91X-Qs2nuVg-IrGeqLRQ%3D%3D.

[44] "National Defense Authorization Act for Fiscal Year 2023," Text for H.R.7900-117th Congress (2021-2022): National Defense Authorization Act for Fiscal Year 2023 § (2022), http://www.congress.gov/.

[45] Stanislav Andreski, *Social Sciences as Sorcery* (London: Deutsch, 1972) While fifty years old, this classic captures the shift in the social sciences to compete with the "hard" sciences chiefly through the use of scientific-sounding language; Ben Connable et al., *Will to Fight: Analyzing, Modeling, and Simulating the Will to Fight of Military Units* (RAND Corporation, 2018), https://doi.org/10.7249/RR2341.

the impact of information warfare activities remains a constant question asked of information professionals in various forums despite robust years of academic research, alternative methods, and robust doctrine.[46]

A review of the literature reveals there is significant acknowledgement on the importance of assessment as well as an understanding of how to conduct assessments and many different techniques available. The problem is that those measurements are either routinely unreliable, too slow, misunderstood, inappropriately conducted, or most importantly, do not adequately satisfy the knowledge demands of the stakeholder. Understanding the development of performance measurements and assessment and how those practices intertwine with military culture over the past century illuminates why this remains a challenging problem.

1. The Science of Performance Management

"What gets measured gets managed" is a concept well understood in business and military circles that has its roots in management theory of the mid-20th century.[47] Within the military, the idea is encapsulated in the oft-heard challenge and conversation-ender *"Ok, but how are you going to measure it?"* Without measurement, as the quote infers, management risks inefficiency. Despite its ubiquity in business, the quote is falsely attributed to Peter Drucker—known as the "godfather of modern management"—and has been "taught as an article of faith in the world's business schools" and "asserted in corporate boardrooms as a non-negotiable."[48] Drucker, who is best known for his concept of management by objectives (MBO), believed in the importance of performance

---

[46] Claire Yorke et al., "Episode 2: Emotion as a Policy Tool," podcast, RUSI Journal Radio, accessed March 31, 2023, https://www.rusi.org/podcasts/rusi-journal-radio/episode-2-emotion-policy-tool; John Bicknell and Brian Schweers, "The Cognitive Crucible Episode #102 Brian Schweers on the All Domain Effects Team Concept," podcast, accessed March 31, 2023, https://information-professionals.org/episode/cognitive-crucible-episode-102/.

[47] Peter F. Drucker, *Management: Tasks, Responsibilities, Practices*, 1st ed. (New York: Harper & Row, 1974).

[48] Paul Barnett, "If What Gets Measured Gets Managed, Measuring the Wrong Thing Matters," *Corporate Finance Review*, February 2015, https://static.store.tax.thomsonreuters.com/static/relatedresource/CMJ--15-01%20sample-article.pdf; T. George Harris, "The Post-Capitalist Executive: An Interview with Peter F. Drucker," *Harvard Business Review*, May 1, 1993, https://hbr.org/1993/05/the-post-capitalist-executive-an-interview-with-peter-f-drucker.

14

measurement but had a more nuanced theory on its utility, which included three chief claims: 1) measurement is not objective or neutral, 2) measurements must focus on results, and 3) controls are needed for measurable and non-measurable events.[49] Drucker's first claim, that "measurement is not objective or neutral" deserves explanation precisely because the science of measurement seems to hinge on the concept of objective measures. What Drucker seeks to address with this claim, is that the sheer act of identifying a measure as important is a subjective one. Unfortunately, the idea of the objective performance measure has become so baked into practice that it often becomes the chief end in itself. That is, the ability to influence the measurement—specifically of something tangible, like "maximizing shareholder value"—easily becomes a way to distinguish the "effectiveness" of a manger against others.[50] In large organizations which emphasize tangible performance measures, incentive structures typically reward demonstrated short term success at the expense of long-term health. This is captured in the phenomenon known as Goodhart's law, which argues that "when a measure becomes a target, it ceases to be a good measure."[51] A Center for Naval Analyses (CNA) paper on the subject provides numerous examples of Goodhart's law in action. For example, when British authorities in colonial India wanted to reduce the population of cobras, they placed a bounty on cobra skins seeking to incentivize hunters to eradicate the cobras for a financial reward. The same hunters quickly realized more money could be earned by breeding cobras and then delivering their skins which subsequently led to an increase in the cobra population.[52] The same report identifies other metric manipulations in various fields to include fighter aircraft readiness, the capability of the Afghan security forces, and ship maintenance.[53]

The misunderstanding and misapplication of performance measures was recognized at the dawn of the Cold War, when the U.S. military began to adopt emerging

---

[49] Drucker, *Management*, 496–98.

[50] Barnett, "If What Gets Measured Gets Managed, Measuring the Wrong Thing Matters," 7–8.

[51] Michael Stumbord et al., "Goodhart's Law: Recognizing and Mitigating the Manipulation of Measures in Analysis" (Center for Naval Analyses, September 26, 2022).

[52] Stumbord et al., 3.

[53] Stumbord et al., 7–8.

business practices that emphasized efficiency and performance measurement to compete with the Soviet Union. As far back as 1956 there were indications that this turn towards performance measures and metrics leads to "dysfunctional consequences."[54] V. F. Ridgway argued that quantified performance measures changed management and employee behavior due to adjusted incentive structures, but "the motivational and behavioral consequences of performance measurements are inadequately understood."[55] Importantly, he notes the well-intentioned tendency to adopt "composite" measures of performance—as also advocated by Drucker—which compile multiple measures as a means of arriving at a more holistic understanding of progress. Even in these instances there are often dysfunctional consequences that are difficult to predict.[56] This is exemplified during the Vietnam War where the U.S. military often measured its success by the number of enemy killed and the tonnage of bombs dropped, which in turn led to incentivizing those specific behaviors, often with counter-productive results.[57] While these specific metrics were part of a tapestry of assessments that aimed to provide a clearer picture of the conduct of the war, incentive structures and organizational culture may lead to activity that disproportionally effect one metric over another due to the ease of manipulation, an enhanced ability to conduct the measurement, or any number of "dysfunctional consequences" which were not originally considered. Once measurements are introduced into a system, incentives begin to realign and tend to reward short-term success over long-term progress.[58] Additionally, military leaders may contort themselves—and their data—to demonstrate success, whether that success is real or not.[59] For example, Leo Blanken and Jason Lepore have demonstrated that when it comes to

---

[54] V. F. Ridgway, "Dysfunctional Consequences of Performance Measurements," *Administrative Science Quarterly* 1, no. 2 (1956): 240–47, https://doi.org/10.2307/2390989.

[55] Ridgway, 247.

[56] Ridgway, 246.

[57] Gregory A. Daddis, *Withdrawal: Reassessing America's Final Years in Vietnam* (New York, NY: Oxford University Press, 2017), 7; *The Fog of War* (Radical Media, 2003), http://www.netflix.com.

[58] Robert Behn, "Why Measure Performance? Different Purposes Require Different Measures," *Public Administration Review*, no. 63 (October 2003): 589.

[59] Leonard Wong and Stephen J. Gerras, "Lying to Ourselves: Dishonesty in the Army Profession:" (Fort Belvoir, VA: Defense Technical Information Center, February 1, 2015), https://doi.org/10.21236/ADA615274.

16

military assessments, incentive structures drive agent behavior, often in ways that are divorced from the objective of the principal.[60] Finally, add to this the phenomenon of performance evaluation structures and the problem with seeking out success through metrics is magnified, which mirrors the activities of leaders in the business world.[61]

2.　Modern Methods in Marketing

The problem of assessment has only grown in recent years with the explosion of the global digital economy, the ubiquity and ease of collecting and processing data, and the demand for "data-driven" strategies.[62] This is especially omnipresent in consumer marketing, where the lexicon is further developed and nuanced than in the military, likely due to the direct relationship between advertising, sales, and profit. While there are differences that limit the comparability of information warfare activities and marketing practices, there are elements found in marketing that might inform a better understanding of assessment of information warfare. Assessment and measurements are critical components of marketing campaigns and there are ongoing arguments on which models represent the best means towards accomplishing the goals of a given company. With the rise of easily trackable digital metrics, *performance marketing* aims to successfully convert an advertisement or impression into a sale. Brand marketing or *performance branding,* on the other hand, aims to create an impression and build awareness that does not necessarily correspond to tangible sales.[63] Marketers Les Binet and Peter Field argue that companies should use a *60%-40%* split between brand marketing versus sales marketing, and it has been recognized as an effective way to balance sustained, long-term growth with short term

---

[60] Leo J. Blanken and Jason J. Lepore, "Performance Measurement in Military Operations: Information versus Incentives," *Defence and Peace Economics* 26, no. 5 (September 3, 2015): 19, https://doi.org/10.1080/10242694.2014.949548.

[61] Barnett, "If What Gets Measured Gets Managed, Measuring the Wrong Thing Matters."

[62] Kate Macri, "SOCOM Says Learning to Leverage Data Is Key for AI," GOVCIO Media and Research, June 10, 2022, https://governmentciomedia.com/socom-says-learning-leverage-data-key-ai.

[63] Jennifer Chase, "Turn Performance Marketing Into Performance Branding," Adweek, August 17, 2022, https://www.adweek.com/performance-marketing/turn-performance-marketing-into-performance-branding/.

success.[64] Modern marketing techniques are evolving as data privacy laws evolve and markets grow ever more crowded. Marketing mix modeling (MMM), which seeks to measure the impact of an advertising campaign through multiple mediums, is seeing a resurgence in popularity.[65] These changes in modern marketing models are partly tied to the rise of *vanity metrics* which may be easy to measure and appear impressive but provides little insight into performance or decision-making.[66]

3. Military Assessment: Doctrine

Joint doctrine acknowledges the importance and the challenge of assessment as it relates to information warfare. Chapter VI of JP-3-04 addresses assessment, how to organize for it, how to conduct it, and recommends a framework along with best practices. Planning for assessment should be considered early in the Joint Planning Process (JPP) and it is suggested that information warfare planners are integrated at planning inception. JP 3-04 provides a 6-step process for conducting assessment (see Figure 1):

---

[64] Les Binet and Peter Field, *The Long and the Short of It: Balancing Short and Long-Term Marketing Strategies* (London: Institute of Practitioners in Advertising, 2013); William Parker, "Mix, Message, Measure and Start Thinking Like a 'Big Brand,'" Adweek, October 25, 2022, https://www.adweek.com/performance-marketing/mix-message-and-measure-to-start-thinking-like-a-big-brand/.

[65] Michael Stahl, "Make the Most of the Marketing Mix Modeling Renaissance," Adweek, March 7, 2023, https://www.adweek.com/media/marketing-mix-modeling/.

[66] Aurora Harley, "Vanity Metrics: Add Context to Add Meaning," Nielsen Norman Group, October 13, 2019, https://www.nngroup.com/articles/vanity-metrics/.
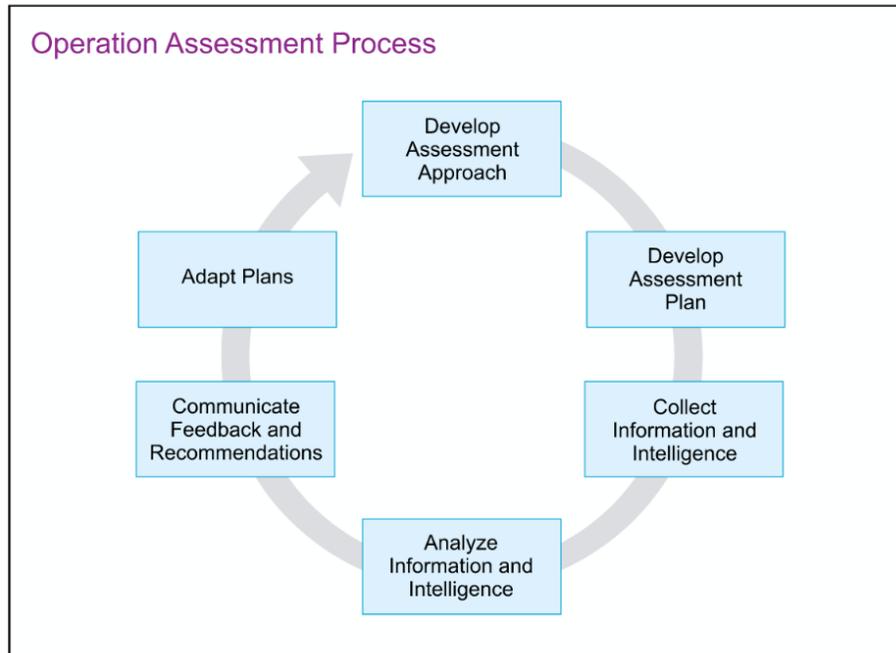
Figure VI-1. Operation Assessment Process

Figure 1.   Operation Assessment Process.[67]

The assessment process preferences quantitative data and suggests determining how qualitative data might be coded or quantified to assist in demonstrating rates of change. The chapter on assessment sets a high bar for the information warfare assessment team, to include skills from multiple disciplines, for example: data science, statistics, language/cultural/regional expertise, and psychology.[68] There is also an emphasis on mapping the expected change desired to develop appropriate measures of performance (MOPs) and measures of effectiveness (MOEs). Perhaps most importantly, JP 3-04 emphasizes behavior as the ultimate aim of leveraged information, which can be influenced through affecting "the perceptions, attitudes, and other drivers of relevant actor behavior."[69]

JP 3-04 references both JP 3-0 *Joint Campaigns* and Operations and JP 5-0 *Joint Planning* for more on assessment. While JP 3-0 offers a short section on assessment, JP

---

[67] Joint Chiefs of Staff, *Information in Joint Operations*, VI–5.

[68] Joint Chiefs of Staff, VI–6, 7.

[69] Joint Chiefs of Staff, II–15.

19

5-0 provides much more, and appears to be the source material for which much of JP 3-04 was based upon. While much of the language is similar, the scope of assessment in JP 5-0 is much broader, as it deals with all military activities and is not solely focused on the effects of information. Strikingly, Appendix K Operational Assessment Plan of JP 5-0 leads with a single sentence in bold typeface: "**There is no single way to conduct assessment.**"[70] It also acknowledges the challenge of measuring social phenomena and cautions staffs from "seeking to quantify data related to social phenomena," which contrasts with the suggestion to do just that in JP 3-04.[71]

4.   Military Assessment: Non-doctrinal

Outside of doctrine, there have been numerous efforts to reconceptualize assessment as both a function of military operations widely and information specifically. Writing in *Joint Force Quarterly,* Steven J. Hendrickson and Riley Post discuss their "blue collar approach to operational analysis" which they undertook because the classic assessment practices they were using—"rooted in MOEs and MOPs"—was not resonating with their commander and Special Operations Command Central (SOCCENT).[72] Their approach used a *Return on Investment* (ROI) model that leveraged quantitative data, but delivered it in narrative form where it was more easily understood.[73] While not focused specifically on information activities, much of their analysis revolved around special operations activities with "no commonly agreed upon method" for measuring success.[74] The authors conclude that good assessment does not require exceptional education or specialization, but rather "answering questions that matter with quality data in a manner that articulates rather than averages the truth."[75]

---

[70] Joint Chiefs of Staff, *Joint Planning*, K-1.

[71] Joint Chiefs of Staff, K-12.2.

[72] Steven J Hendrickson and Riley Post, "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study," *Joint Forces Quarterly*, no. 96 (2020): 51.

[73] Hendrickson and Post, 55.

[74] Hendrickson and Post, 52.

[75] Hendrickson and Post, 57.

In 2015 RAND published an exhaustive three-part survey titled *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade.*[76] The research—primarily a literature review and subject matter expert (SME) interviews -sought to provide best practices in assessment and evaluation that surveyed multiple fields to support both practitioners and stakeholders.[77] The series features a desk reference, a handbook for practitioners, and an annotated reading list and is meant to be used to aid in assessment activities more effectively. It also makes recommendations beyond the tactics of conducting assessments, to include the importance of implementing a *theory of change* as part of influence activity.[78] This theory of change indicates how and why the practitioner believes that the activity will lead to the desired outcome. In 2017, Dr. Christopher Paul built on the original findings by authoring a fictional intelligence (FICINT) "worked example" to demonstrate how the techniques and processes recommended in the original research might be applied in a real-world scenario.[79] In the example Paul demonstrates the importance of including a logic model/theory of change that explains how and why the influence activities are expected to lead to the desired effects.[80] Altogether, the 2015–2017 RAND research provides the most exhaustive and complete compiling of assessment regarding information and influence activities.

5.   Assessments: Synthesis and Conclusion

What makes assessment in the realm of information warfare particularly challenging is the fact that it is centered on understanding changes in human thoughts, emotions, and behavior. While determining changes in behavior can be seemingly easy to measure—either the target audience does the desired action or not—the challenge remains of tying the information warfare activity to that outcome. When it comes to thoughts and

---

[76] Christopher Paul et al., *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Desk Reference* (Santa Monica, CA: RAND, 2015).

[77] Paul et al., xv.

[78] Paul et al., xvii.

[79] Christopher Paul, *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Worked Example* (RAND Corporation, 2017), https://www.rand.org/pubs/research_reports/RR809z4.html.

[80] Paul, 62–63.

emotions, that challenge is even greater. Establishing a baseline using surveys and polls is often offered as a starting point in determining effectiveness of information warfare activities.[81] But these activities are severely limited due to multiple factors including access to the target audience, survey reliability, and respondent deception practices. Further, and most important, science is not settled on understanding truth-telling. Put another way, even if the ability and will existed to examine the active brain activity of a target audience in real-time to understand what effect an information warfare activity might have, the outcome would be inconclusive at best. First, while the science concerning brain activity measurement through technology such as functional MRI (fMRI) scans is rapidly advancing, there is little data from which to draw that indicates what kinds of information activity can definitively lead to changes in thoughts, attitudes, or behavior. Second, most of our understanding concerning the socio-psychological activity of humans relies on data that is WEIRD (Western, educated, industrialized, rich, and democratic).[82] Information warfare activities are often taking place in environments and domains where the population does not fit the WEIRD construct, and while there are likely some universal traits that transcend culture, it is also likely the case that activities should be modified to meet the target audience. The literature reveals that demonstrating epistemological certainty in information warfare is currently exceedingly challenging to be thought of as nearly impossible.[83] As a result the best that can be accomplished is providing indicators from the observable world that suggest favorable activity.[84]

Military doctrine and academic research both stress the importance of assessment and metrics while repeatedly warning about the challenges of precision, especially

---

[81] Paul et al., *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade*, 231.

[82] Julia M. McClenon, "We're WEIRD and Our Adversaries Know It: Psychological Biases Leave the United States Vulnerable to Cognitive Domain Operations," Irregular Warfare Initiative, June 7, 2023, https://irregularwarfare.org/articles/were-weird-and-our-adversaries-know-it-psychological-biases-leave-the-united-states-vulnerable-to-cognitive-domain-operations/.

[83] United States Marine Corps, *Information*, MCDP 8 (Washington, D.C.: United States Marine Corps, 2022), 2–5.

[84] See Chapter 1 "The World Outside and the Pictures in Our Heads" Walter Lippmann, *Public Opinion*, 1921, https://www.gutenberg.org/ebooks/6456/pg6456.html.utf8.

regarding social phenomena. Additionally, doctrine tends to emphasize behavior change as the chief desired outcome of information activities. Consumer marketing is also chiefly concerned with achieving tangible results, usually in the form of sales. However, there is a growing realization that the sustained health of a brand depends on actively marketing to build it, which may come at the cost of short-term success. Binet and Field's *60–40* model of brand building versus sales activation has convinced many businesses of the importance of brand growth to promote long-term success. The emphasis that military doctrine places on behavioral outcomes might be likened to sales activation in the business realm, with very little written that suggests brand-building in an information warfare context. It is in this space—brand-building in the information warfare context—where a gap and opportunity may exist.

The enduring challenge of performance measurement is perfectly captured in a quote commonly attributed to Peter Drucker: "What gets measured gets managed." An internet search for the term will generate dozens of articles about the importance of performance measurement and Peter Drucker's contribution to management theory. Further research reveals that Drucker never said it, and in fact, the quote is a truncated version of a synopsis of Ridgway's thesis on the "dysfunctional consequences" of performance measurement that was discussed previously. The full quote reads: "What gets measured gets managed — even when it's pointless to measure and manage it, and even if it harms the purpose of the organization to do so."[85]

While Drucker's conception of management and performance measures was much more nuanced than the quote attributed to him, Ridgway provided tangible examples of exactly how performance measurement can lead to dysfunction and inefficiency while appearing to demonstrate progress.

In the first part of this chapter, I examined the complicated terminology surrounding information, defined information warfare, and argued that it is the most appropriate term for this research because of its ubiquity across multiple disciplines and research fields.

---

[85] Simon Caulkin, "The Rule Is Simple: Be Careful What You Measure," *The Observer*, February 10, 2008, sec. Business, https://www.theguardian.com/business/2008/feb/10/businesscomment1.

Second, I explored theory of victory research in a strategic context and how it might apply to information warfare. Importantly, the literature suggests that one cannot "win" in an "information war" but can be "winning." Third, I provided a wide survey on assessments, metrics, and measures through an exploration of management theory, business practices, and military doctrine. The literature on assessments is deep, detailed, and constantly evolving. There is consensus across disciplines on the challenge concerning assessment of complex human phenomena, and an understanding that accurately measuring the potential effects of activity requires deliberate planning, adequate resources, and a well-developed understanding of the full scope of the scenario. Taken together, this background provides the foundation for a proposed theory of victory for information warfare.

III. AN INFORMATION WARFARE THEORY OF VICTORY

> Not everything that can be counted counts, and not everything that counts can be counted.[86]
>
> —William Bruce Cameron

The purpose of this chapter is to propose an information warfare theory of victory that synthesizes research from multiple disciplines. The chapter begins by explaining why the concept of *winning* is essential to positing a theory of victory for information warfare. The next section leverages the work of prominent war studies theorists to propose a general theory of victory for information warfare. (GTOV). With a general theory of victory established, a proposed theory of victory (PTOV) for information warfare is introduced that delineates four essential qualities that form the theory of victory: vision, truth, perception, and volume. The chapter ends with a discussion on the regional and contextual factors that must be considered in developing an information warfare theory of victory and unique factors facing democracies that require attention.

A. WHY WINNING?

This thesis examines *"how do we know if we are winning in the information environment?"* Embedded within this fundamental research question are ambiguous notions of victory through the term *winning,* along with epistemological concerns demanding deeper exploration. There are multiple angles from which to begin addressing these concerns, including philosophical inquiry on what it means to attain and distribute knowledge, defining what constitutes *winning*, and properly framing, delineating, and mapping the information environment. There is also the challenge as to whether this is the

---

[86] Jonathan O. Cullis, "Not Everything That Can Be Counted Counts…..," *British Journal of Haematology* 177, no. 4 (2017): 505–6, https://doi.org/10.1111/bjh.14626.

right question to explore in the first place.[87] Scholars in the field of victory studies argue that in any competition short of military conflict, "one is either winning or losing," which suggests there is interest in gauging progress along that front.[88] The centrality of *winning* as it relates to the current national security environment generally and information warfare specifically guides this research and serves as the foundation towards understanding what might constitute victory in the information environment.

The centrality of *winning* as a tenet of modern national security culture is difficult to overstate, especially in the Armed Forces. While the purpose of the Armed Forces as expressed in Executive Order 9877 (Functions of the Armed Forces, 1947) sets the "common missions" of the services, the word or concept of *winning* or *victory* does not appear.[89] Despite this, the Army, Navy, Air Force, and Marines all include aspects of *winning* in their current mission or purpose statements (see Table 1). Likewise, it is commonplace for defense analysts to argue that the Armed Forces altogether or the military services individually are not "winning" anymore.[90] It is clear that there is a desire among senior military and political leaders, as well as the American public, to achieve victory and

---

[87] The usefulness of a "victory/defeat" model of state power is often challenged as ignoring the realities of international competition and conflict. See, for example: Michael Levine, "The Limits of Victory: Evaluating the Employment of Military Power," *Prism* 10, no. 1 (September 2022), https://ndupress.ndu.edu/Media/News/News-Article-View/Article/3175408/the-limits-of-victory-evaluating-the-employment-of-military-power/
https%3A%2F%2Fndupress.ndu.edu%2FMedia%2FNews%2FNews-Article-View%2FArticle%2F3175408%2Fthe-limits-of-victory-evaluating-the-employment-of-military-power%2F.

[88] Lee, "American Grand Strategy and the Unfolding of the Cold War 1945–1961," 367.

[89] Harry Truman, "Executive Order 9877: Functions of the Armed Forces | Harry S. Truman," accessed July 27, 2023, https://www.trumanlibrary.gov/library/public-papers/159/executive-order-9877-functions-armed-forces.

[90] John A. Nagl, "Why America's Army Can't Win America's Wars," *The U.S. Army War College Quarterly: Parameters* 52, no. 3 (August 25, 2022), https://doi.org/10.55540/0031-1723.3164; Peter Mansoor, "Why Can't America Win Its Wars?," *Hoover Institution*, March 10, 2016, https://www.hoover.org/research/why-cant-america-win-its-wars; Bing West, "Three Wars, No Victory – Why?," *The National Review* (blog), February 18, 2021, https://www.nationalreview.com/magazine/2021/03/08/three-wars-no-victory-why/; James Fallows, "The Tragedy of the American Military," *The Atlantic*, February 2015, https://www.theatlantic.com/magazine/archive/2015/01/the-tragedy-of-the-american-military/383516/.

to *win* when it comes to conflict.[91] The definition of winning, however, is often left undefined.

Table 1.   Mission and Purpose Statements of the Military Services[92]

Service	Mission / Purpose
United States Army	"To deploy, fight and **win** our nation's wars by providing ready, prompt and sustained land dominance by Army forces across the full spectrum of conflict as part of the joint force."
United States Navy	"The Department of the Navy will recruit, train, equip, and organize to deliver combat ready Naval forces to **win** conflicts and wars while maintaining security and deterrence through sustained forward presence."
United States Air Force	"The mission of the United States Air Force is to fly, fight and **win**—airpower anytime, anywhere."
United States Marine Corps	"Our purpose is found in our collective fight, **winning** on behalf of our Nation, its progress, and its ideals."
United States Space Force	"The U.S. Space Force is responsible for organizing, training, and equipping Guardians to conduct global space operations that enhance the way our joint and coalition forces fight, while also offering decision makers military options to achieve national objectives."
United States Coast Guard	"The mission of the United States Coast Guard is to ensure our Nation's maritime safety, security and stewardship."

As the national security establishment shifts to integrated deterrence, the centrality of *winning* has intensified.[93] One of the principal challenges in achieving deterrence is determining how to measure success. To address this, United States Special Operations

---

[91] In his farewell letter to the U.S. Army, General James McConville emphasized the concept of winning writing "winning matters" in bold capital letters. James C. McConville, "40th Chief of Staff of the Army Final Message to the Army Team," www.army.mil, August 4, 2023, https://www.army.mil/article/ 268883/40th_chief_of_staff_of_the_army_final_message_to_the_army_team; USSOCOM identifies their enterprise priorities as "people – win – transform." "USSOCOM Enterprise Priorities," accessed August 10, 2023, https://www.socom.mil/about.

[92] The Army, Navy, Air Force, and Marines websites all contain elements of "winning" in their purpose or mission statements. Adapted from U.S. Navy, "About the U.S. Navy," U.S. Navy, accessed July 27, 2023, https://www.navy.mil/About/; U.S. Air Force, "Our Mission," U.S. Air Force, accessed July 27, 2023, https://www.airforce.com/mission; U.S. Army, "Purpose & Legacy of the U.S. Army," U.S. Army, accessed July 27, 2023, https://www.goarmy.com/explore-the-army/purpose-legacy.html; "What Is the Marine Corps? | Marines," United States Marine Corps | Marine Recruiting | Marines, accessed July 27, 2023, https://www.marines.com/about-the-marine-corps/who-are-the-marines.html.

[93] Lloyd Austin, *National Defense Strategy* (Washington, D.C.: Department of Defense, 2022), 1.

Command (SOCOM) and the Joint Special Operations University (JSOU) launched a learning campaign that tackles this specific question by framing their interest under the banner of "what winning looks like."[94] The approach seeks to look forward, imagining what conditions might be in place in a future operational environment that satisfies desirable military and political objectives. *Winning*, for its part, is not defined. It is a moving target, adjusting as variables in the environment change. While there may be critiques to this type of inquiry which purposefully avoid defining the key term, the lack of a firm definition lends itself to the amorphous and subjective nature of victory in the first place.

While there is utility in avoiding a strict definition of *winning*, this introduces additional complexity. Just as it is important to make the distinction between *war* and *warfare*, it is also important to make a distinction between *win* and *winning*. Where war is "a state of usually open and declared armed hostile conflict between states or nations," warfare consists of the means and methods of accomplishing those goals.[95] Likewise, to *win* is to achieve a final victory; a distinct end state that signals the termination of war. To be *winning*, on the other hand, is perceived or real movement in a direction that is favorable to an actor. Further, because information warfare functions within the frameworks of both competition and conflict, it is worth discussing the concept of an "information war" as something distinct from conflict and competition. If we allow for the existence of an "information war," where various actors are competing for advantage within the information environment, it is possible to imagine scenarios where one may be winning the information war but losing the actual war—that is, the traditional notion of war in its physical military context. The opposite here can also be true. Consider, for example, that during the majority of the Vietnam War the U.S. may have been winning on the ground while losing in the information environment, which ultimately contributed to the total

---

[94] Alex Deep, "'What Winning Looks Like' Narrative for Integrated Deterrence and Strategic Competition" (Joint Special Operations University, 2023).

[95] *Merriam-Webster*, s.v. "war," accessed August 12, 2023, https://www.merriam-webster.com/dictionary/war.

loss.[96] Similarly, beginning in 2022, Ukraine has been lauded for its information efforts in its resistance to the Russian invasion.[97] It is yet to be seen whether winning in the information environment will ultimately contribute to victory on the ground, and perhaps may offer future research opportunities in the linkages between success in the information environment and the physical dimension.

There are inherent challenges with allowing terms to go undefined. Without a firm definition of *win* or *winning,* achieving either may seem improbable. However, history instructs that in many cases—especially conflict and competition with unclear objectives—victory will remain amorphous and subjective over time. In fact, in some cases there may be no clear way to *win* whereas there may be a pathway to *winning*. The Global War on Terror (GWOT), for example, has commonly been referred to as the "Forever War," due partly to the long duration of the conflict and the fact that it seems impossible to win in totality.[98] Reframing the conception of victory, however, from traditional victory marked by a total cessation of conflict and a return to some *status quo ante* to something more akin to a professional sports season, where the goal is to win as many games as possible and then prepare for the next season, provides a more realistic and helpful model for thinking about current and future competition and conflict.[99]

As advanced earlier, J. Boone Bartholomees argues that victory is not a prescribed condition or end state, but rather a subjective assessment that is shared among various audiences.[100] Victory is malleable, context dependent, and often unpredictable. In the case of the U.S., he writes that victory is determined by the American public, political and

---

[96] Daddis, *Withdrawal*, 4.

[97] Kathleen McInnis, Seth Jones, and Emily Harding, "NAFO and Winning the Information War: Lessons Learned from Ukraine," Center for Strategic and International Studies, October 5, 2022, https://www.csis.org/analysis/nafo-and-winning-information-war-lessons-learned-ukraine.

[98] Philip H Gordon, "Can the War on Terror Be Won?," *Foreign Affairs* 86, no. 6 (December 2007).

[99] While metaphors can be useful, there are limits and dangers in oversimplifying complex human phenomena. See: Arie W. Kruglanski et al., "What Should This Fight Be Called? Metaphors of Counterterrorism and Their Implications," *Psychological Science in the Public Interest* 8, no. 3 (2007): 97–133; Erin Steuter and Deborah Wills, "At War with Metaphor: Media, Propaganda, and Racism in the War on Terror," *Choice Reviews Online* 46, no. 07 (March 1, 2009): 46–3669-46–3669, https://doi.org/10.5860/CHOICE.46-3669.

[100] Bartholomees, "Theory of Victory," 31.

military elite, American partners and allies, and world opinion, in decreasing order of importance. Additionally, victory is not simply a matter of individual opinion, but rather a widely shared intersubjective belief that exists in specific times and contexts.[101] That is, an assessment of victory may change over time based on the availability of new information or shifting values. For a political system that determines power through popular elections, it is the intersubjective consensus among the American public that is most important for ascribing victory, as power transfers from the people to the political elite. Political and military elite who influence policy as well as what the public and other actors might observe through revelation and obfuscation are second in the order. Partners and allies, who can contribute to competitive efforts as well as influence their own populations, rank third. Finally, world opinion in the aggregate factors last, understanding that each actor could influence the other through ongoing interaction. This "hierarchy of victory" provides a starting point for understanding which actors are responsible for determining whether victory is being achieved or not (see Table 2). Using this, it is possible to begin to tease out which interactions may contribute towards subjective feelings of victory as it relates to information warfare.

Table 2.   Bartholomees' Hierarchy of Victory[102]

| (1) American Public |
| (2) Political/Military Elite |
| (3) Partners/Allies |
| (4) World Opinion |

These actors are the determinants of victory in the case of the U.S., with decreasing order of importance.

---

[101] Vivienne Brown, "INTERSUBJECTIVE BELIEF," *Episteme* 16, no. 2 (June 2019): 139–56, https://doi.org/10.1017/epi.2017.29.

[102] Adapted from: Bartholomees, "Theory of Victory."

In the realm of information warfare, demonstrating success—the pathway towards winning—is traditionally accomplished through assessments. However, as advanced by Blanken and Lepore, the activities and actions of the agent, in this case the information professional, can become so far divorced from what was initially sought by the principal that the assessments no longer serves as a useful tool to guide the process.[103] This is what leads to the constant search for a better way to measure the effects of operations in the information environment.[104] This is where a theory of victory is required to realign efforts towards achieving the ultimate goal: winning.

B.   A GENERAL THEORY OF VICTORY FOR INFORMATION WARFARE

According to war studies scholar Bradford Lee who has explored theories of victory, a general theory of victory can be constructed as a linear statement: *The assumptions made about friendly actions taken to influence dynamics of a system to achieve strategic effects*.[105] To adapt this model for information warfare, slight adjustments must be made to capture differences unique to information warfare: The *assumptions* made about *actions/activities* taken to *influence dynamics* within the *information environment* to achieve *strategic effects*.[106] The model can be further modified to reflect specific objectives, which will better assist in fitting information warfare into a larger framework: The *assumptions* made about *actions/activities* taken to *influence dynamics* within the *information environment* to achieve a *stated objective*.

Bradford Lee's TOV: The *assumptions* made about friendly *actions* taken to *influence dynamics* of a system to achieve strategic *effects:* (A)(a) → (ID) → (SE)

---

[103] Blanken and Lepore, "Performance Measurement in Military Operations."

[104] Bicknell and Schweers, "The Cognitive Crucible Episode #102 Brian Schweers on the All Domain Effects Team Concept."

[105] Lee, "Theories of Victory."

[106] This thesis is using the joint concept of the operational environment that consists of information environment therein. The Army uses the concept of an information dimension within the operational environment which captures a similar notion.

GTOV for IW (see Figure 2): The *assumptions* made about *actions/activities* taken to *influence dynamics* within the *information environment* to achieve a *stated objective*: (A)(a/a) → (ID/IE) → (SO)

$$(A)(a/a) \rightarrow (ID) \rightarrow (SE)$$

Figure 2.   General theory of victory of information warfare.

Assumptions. The basis of Lee's theory of victory relies on the assumptions of war planners about how adversarial actors might respond to specific actions or activities taken or that occur in the operational environment. This is one of the most challenging aspects of generating a TOV because it lies precisely between art and science. The idea of basing a TOV on a foundation of assumptions cuts against the grain of seeking objective certainty, even though most war planners are aware of Clausewitz' concept of chance in war.[107] The assumptions are not blind, however, and instead rely on tangible and developed qualities, such as expertise, training, experience, data, history, judgement, and past performance.[108] Ambiguity is intrinsic to the conception of a TOV—it is a theory, after all—untested, and the planner or practitioner relies on the aforementioned qualities to demonstrate why those assumptions are relevant and likely.

Actions & Activities. Actions and activities (AA) are carried out by the friendly actor, a proxy, or a third-party that occurs in the information environment. In information

---

[107] Carl von Clausewitz et al., *On War*, First paperback printing (Princeton, N.J: Princeton University Press, 1989), 89.

[108] Julia Galef quotes work done by British Consultant Matthew Leitich on overcoming uncertainty through the concept of giving informed estimates. That is, explain the challenge but also explain where the information comes from. Julia Galef, *The Scout Mindset: Why Some People See Things Clearly and Others Don't* (New York: Portfolio, 2021), 129–31.

warfare, AA are not limited to messaging, but include the full range of possible activities—both physical and virtual—that might have an impact and informational value.[109]

Influence Dynamics **within the** *information environment.* The goal of the TOV is to influence dynamics of a given system, and that is accomplished through actions/activities. In information warfare, assumptions are made about how a favorable informational effect can be achieved to influence dynamics—to nudge the information environment in a direction that supports a stated objective. Determining what types of AA will lead to meaningful opportunities to influence dynamics of the information environment requires advanced education, training, and experience. The information environment is a subset of the Joint Force's conception of the operational environment and consists of "the aggregate of [the] social, cultural, linguistic, psychological, technical, and physical factors."[110] There is divergence in the Army's conception of an information environment, and instead the Army has moved towards conceptualizing the role of dimensions (physical, informational, and human) as part of the operational environment.[111]

Stated Objective. This is the proximate goal that is sought and is conceptualized in TOV research as the "strategic effects." It is the object to which efforts are aimed under the assumption that if the dynamics of the system are adequately affected, then victory will be achieved. As applied to information warfare it is beneficial to represent this as a tangible goal or a *stated objective* and further as a subset of a greater effort. Additionally, in information warfare the *objective* may not represent a single goal, but rather it may

---

[109] The relevant concept here is "leveraging the inherent informational aspect of activities..." Joint Chiefs of Staff, *Information in Joint Operations*, II–2.

[110] Joint Chiefs of Staff, ix.

[111] Department of the Army, *Operations*, FM 3-0 (Washington, D.C.: Department of the Army, 2022), 1–21–23.

represent a concept of a modified or idealized information environment (example: increase in support for friendly military activities).[112]

Lee argues that there are numerous effects that the friendly actor is seeking to influence through actions and activities. While these effects were considered as part of a comprehensive military strategy towards achieving victory, they have corresponding relevance to information warfare to various degrees. These include: *military effects, logistical effects, economic effects, C4ISR effects, psychological effects, political effects, strategic-choice effects, resource allocation effects, treasure effects, and coalition effects.*[113] See Table 3.

Table 3.   Lee's Strategic Effects.[114]

Type of Effect	Description
Military Effects	Traditionally conceived military activities: destroyed equipment, soldiers killed, etc.
Logistical Effects	Deny adversary supplies/reinforcements/infrastructure
Economic Effects	Sectoral—damage enemy ability to produce war materiel Systemic—disrupt economy as a whole
C4ISR Effects	Disrupt/paralyze enemy ability to collect/process/assess/ disseminate information
Psychological Effects	Political leaders, Military, Population
Political Effects	Disrupt those who have power within a regime
Strategic-choice Effects	Induce blunders in adversarial course of action
Resource Allocation Effects	Divert adversarial resources from optimal uses
Treasure Effects	Destroy or threaten specific assets valued by adversary leadership
Coalition Effects	Cause a breakdown in strategic coordination / isolate a third party / knock out any ally

---

[112] The concept of the "objective" in OKR (Objectives and Key Results) serves as a suitable guide for establishing the stated objective. It should be tangible, but it may also be something that needs to be discussed to determine whether it has been achieved. For example, 'dominate the mid-range microcomputer component business.' John Doerr, *Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs* (New York: Portfolio/Penguin, 2018), 23.

[113] Lee, "Theories of Victory."

[114] Source: Lee.

C.   A PROPOSED THEORY OF VICTORY FOR INFORMATION WARFARE

With an understanding and concept of a GTOV for information warfare established, the next step is adapting this to the current operational environment. This proposed theory of victory combines the GTOV and contemporary research and concepts from the field of influence and information warfare to arrive at a potential model for achieving victory in information warfare. It is important to note that a single unifying theory of victory will unlikely suffice over time. As the operational environment changes, so too will the TOV. While it is difficult to predict the multitude of ways that this may change, the TOV will need to be adjusted based on regional and contextual circumstances, likely simultaneously.

The academic and applied fields of marketing, influence, and communications provide evidence-based techniques to influence individuals and groups towards certain attitudes and behaviors. While this is particularly true in marketing, where success can often be measured in terms of revenue or sales, this is also true in non-commercial influence, to include the influence efforts of both state and non-state actors. The past decade has ushered in a new era of influence research, based largely on the rapid spread of Islamic State propaganda, Russian efforts to influence the 2016 U.S. Presidential election, the COVID-19 pandemic, and the Ukraine-Russia war that began in 2022.[115] This explosion in empirical research has added much value to the field and offers an opportunity to synthesize this research and extract potential best practices.

While there are many similarities in the principles used in various fields to influence audiences, the way that success is measured is often very different. Traditional marketing might use performance metrics to determine the success of a campaign—correlating sales

---

[115] See for example: P. W. Singer and Emerson T. Brooking, *Likewar: The Weaponization of Social Media*, First Mariner Books edition (Boston New York: Mariner Books, 2019); John Haines, "How, Why, and When Russia Will Deploy Little Green Men – and Why the U.S. Cannot," Foreign Policy Research Institute, March 9, 2016, https://www.fpri.org/article/2016/03/how-why-and-when-russia-will-deploy-little-green-men-and-why-the-us-cannot/; Permanent Select Committee on Intelligence (Democrats), Exposing Russia's Effort to Sow Discord Online: The Internet Research Agency and Advertisements, Permanent Select Committee on Intelligence, House of Representatives, accessed November 29, 2022, https://democrats-intelligence.house.gov/social-media-content/; McInnis, Jones, and Harding, "NAFO and Winning the Information War."

35

to a specific email campaign, for example.[116] On the other hand, a non-state actor seeking to reduce the morale of an opposing military force might choose to observe desertions as a measure of success.[117] Across various disciplines, there is a tendency to search for a common measure that can be easily integrated and widely understood.[118] To some degree, this exists in the business world where revenue or sales are easily comprehended. However, businesses often struggle to neatly correlate marketing with sales performance.[119] Additionally, there is ample evidence that leaning too hard on performance marketing (where conversion to sales is the key performance indicator—or KPI) can lead to brand devaluation over time and ultimately future challenges.[120] While other fields do not conceive of their information efforts in the context of achieving "victory," there are certainly benchmarks and goals desired that lend towards that end. For example, business marketing often looks to share of voice (SOV) as a measure to determine to what degree a brand or business is succeeding in market.[121] SOV is a measure of the ad-spend of a business as compared to its competitors in the same market, which has shown to be a reliable metric for determining success.

To adequately propose a TOV for information warfare requires two essential elements: 1) identify best practices across influence and information studies that are relevant to the current operational environment, and 2) integrate those with the GTOV.

1.   Strategic Effect: Vision—Start With the End State

TOV research argues that an actor's efforts are aimed at *influencing dynamics* of a system to achieve *strategic effects*. The underlying claim is that by achieving those

---

[116] Vince Kellen, "Business Performance Measurement," *DePaul University*, February 2003, 4.

[117] Adam Scher, "The Collapse of the Iraqi Army's Will to Fight: A Lack of Motivation, Training, or Force Generation?," Army University Press, February 2016, https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2016-Online-Exclusive-Articles/Collapse-of-the-Iraqi-Army/.

[118] Christopher Paul, *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Desk Reference* (Santa Monica, CA: RAND, 2015), 19.

[119] Les Binet and Peter Field, *The Long and the Short of It: Balancing Short and Long-Term Marketing Strategies* (London: Institute of Practitioners in Advertising, 2013), 14.

[120] Binet and Field, 18–19.

[121] Binet and Field, 14.

strategic effects, the dynamics of the adversary's system will shift in such a way that leads to a consequential change in the adversary that is advantageous to the friendly side. This can include a range of outcomes, to include political recalculation, suing for peace, or even political disintegration.[122] The first challenge for the planner is determining how the system needs to change to achieve that effect. In the realm of information warfare, the task is similar, but requires slight modification. Instead of imagining how the adversary's system might be influenced to achieve a military or political victory, the goal is to imagine what the future operational environment might look like that would provide the friendly side with a marked advantage.[123] Stated simply—what would the future operational environment look like if the friendly actor was "winning?"

Former Governor on the Broadcasting Board of Governors and political warfare expert Matt Armstrong argues for this, emphasizing that vision is the first step in achieving tangible results in the information environment.[124] Too often, he argues, countries like the U.S. engage in "stop it" measures, where the goal is primarily reactive in nature, focusing on countering adversarial information efforts as opposed to building towards a more favorable future environment.[125] As such, the TOV for information warfare process begins by constructing a vision of what the information environment looks like in a future scenario that is favorable. Much like the discussion on assumptions, the process is rooted in the developed qualities of the planner and his or her team, to include expertise, training, experience, data, history, judgement, and past performance. The process for achieving the vision can be multi-faceted and can include collaborative planning, brainstorming sessions, operational design, or textual analysis. How this process is accomplished is less important

---

[122] Lee, "Theories of Victory."

[123] Here, the Army's concept of "advantage" as it relates to the physical, human, and informational dimensions is helpful within this framework. Department of the Army, *Operations*.

[124] Matt Armstrong, "No, We Do Not Need to Revive the U.S. Information Agency," War on the Rocks, November 12, 2015, https://warontherocks.com/2015/11/no-we-do-not-need-to-revive-the-u-s-information-agency/.

[125] John Bicknell, Matt Armstrong, and Chris Paul, "The Cognitive Crucible Episode #128 Matt Armstrong and Chris Paul on the U.S. Information Agency and Foreign Policy," podcast, The Cognitive Crucible, accessed August 15, 2023, https://information-professionals.org/episode/cognitive-crucible-episode-128/.

than the fact of its adoption in the first place. Without a vision for the future, actions and activities are likely to be reactive and ad-hoc in nature.

2. Actions and Activities: Truth, Perception, Volume

Analyzing the current information environment and dissecting studies of actors who have been deemed successful or unsuccessful in information warfare, there are clear trends that emerge. A contextual analysis of academic research and media reports reveal that there are certain activities that lend towards perceptions of success among observing actors—Bartholomee's Hierarchy of Victory. These can be broadly categorized as 1) achieving narrative dominance, 2) an ability to counter in the information environment, and 3) speed of action.[126] Applying these broad categories to the TOV model, however, requires adjustments to distill them into definable qualities as well as to account for unique factors facing democratic societies. These attributes, or *assumptions* in the PTOV are: 1) truth, 2) perception, and 3) volume.

a. Truth

While much of modern information warfare research is concerned with issues relating to concepts such as misinformation, disinformation, and associated terms, when discussing the way that democratic societies like the U.S. can counter or compete in the information environment, there is a growing consensus that disseminating truthful information is paramount.[127] Societies that champion liberal democratic values face unique challenges when competing in the information environment, both at home and abroad, and while there are instances that demand secrecy and deception, the modern information environment all but guarantees that information will eventually be made

---

[126] The U.S. is often accused of "losing the information war." Analysis of these claims often discuss the U.S. timidity in the information environment and an unwillingness to act aggressively. See: Ivana Stradner Ruggiero Anthony, "America Is Still Losing the Information War," *Foreign Policy* (blog), March 10, 2023, https://foreignpolicy.com/2023/03/10/us-russia-information-war-bioweapon-biolab-conspiracy-theory-tucker/.

[127] Rosenberger and Gorman, "How Democracies Can Win the Information Contest."

public.[128] The nature, history, and culture of democratic societies generates resistance to deceptive information practices, even when those practices are in support of military operations overseas or deemed to be ineffective.[129] This confluence of factors indicates that democracies are likely to be penalized when deception is used, especially when conducted outside of popular notions of traditional warfare.

b.   *Perception*

There is a similar challenge that democratic societies face related to the concept of truth, but different in kind. That is, democratic societies, by the nature of their adherence to principles of free speech and expression, tend to abhor critical errors made in the information environment which are done ostensibly in the name of the people.[130] The modern media landscape has only accelerated this trend, where messages intended for one audience are routinely lifted and disseminated to other audiences, often resulting in unintended effects.[131] This can occur seemingly at random as well as purposefully to serve the narrative or interests of another party. Failure in the information environment—or perceived failure—is often used as evidence of the futility of such efforts in the first

---

[128] Ellen Nakashima, "Pentagon Opens Sweeping Review of Clandestine Psychological Operations," *Washington Post*, September 20, 2022, https://www.washingtonpost.com/national-security/2022/09/19/pentagon-psychological-operations-facebook-twitter/.

[129] Eileen O'Connor and David Hoffman, "Opinion | Media in Iraq: The Fallacy of Psy-Ops," *The New York Times*, December 16, 2005, sec. Opinion, https://www.nytimes.com/2005/12/16/opinion/media-in-iraq-the-fallacy-of-psyops.html; Mark Visger, "Static Inertia: The Legal Challenges to Making Progress on an Effective Military Information Strategy," Modern War Institute, January 4, 2022, https://mwi.usma.edu/static-inertia-the-legal-challenges-to-making-progress-on-an-effective-military-information-strategy/.

[130] See for example, popular backlash to the Cambridge Analytica scandal and the Unites State's shuttered Disinformation Review Board: Nicholas Confessore, "Cambridge Analytica and Facebook: The Scandal and the Fallout So Far," *The New York Times*, April 4, 2018, sec. U.S., https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html; Steven Lee Myers, "A Panel to Combat Disinformation Becomes a Victim of It," *The New York Times*, May 18, 2022, sec. Technology, https://www.nytimes.com/2022/05/18/technology/disinformation-governance-board.html.

[131] Two stark examples, one commercial and one military: John Fuisz, "Lessons from Anheuser-Busch," Information Professionals Association, July 16, 2023, https://information-professionals.org/lessons-from-anheuser-busch/; "U.S. General in Afghanistan Apologizes for 'Offensive' Leaflet," *The New York Times*, September 6, 2017, https://www.nytimes.com/2017/09/06/world/asia/afghanistan-taliban-leaflet-us-apology-dog.html.

place.[132] Add to this an American history of general distrust of government and government information efforts specifically, and the challenge becomes starker.[133] This is exacerbated by the heavy reliance on so-called "WEIRD" research (Western, Educated, Industrialized, Rich, Democratic). Informational qualities that are largely abhorred in the West, for example, may garner different reactions among different cultures.[134] For the planner and practitioner, it is imperative to put forth incredible effort to avoid information *faux pas*—or information fratricide—that sets back the overall effort and contributes to negative perceptions among critical audiences and actors.

c.   *Volume*

One of the most acute challenges that exists in achieving narrative dominance in the current information environment stems from the seeming endless cycle and pervasiveness of content. The 24-hour news cycle continues to morph, delivering meta-cycles and media hype, where major events can occur, be digested and turned into memes and discarded before the day is done.[135] In an environment where the barrier for entry has been significantly lowered, large bureaucracies struggle to compete, despite retaining expertise and much larger budgets. Frequency—the concept of repeating a message many times to achieve effects—is proven to be one of the most important elements of successful influence campaigns.[136] The message that is heard or seen most frequently is the one that is remembered and "quantity is a quality of its own."[137] Frequency is not limited to

---

[132] See for example: Stephen Losey, "Defense Department Took 22 Days to Create 'Silly Bear' Meme to Roast Russian Hackers," Military.com, March 25, 2021, https://www.military.com/daily-news/2021/03/25/defense-department-took-22-days-create-silly-bear-meme-roast-russian-hackers.html.

[133] Bernstein, "Bad News."

[134] McClenon, "We're WEIRD and Our Adversaries Know It."

[135] Peter L.M. Vasterman, "Media-Hype: Self-Reinforcing News Waves, Journalistic Standards and the Construction of Social Problems," *European Journal of Communication* 20, no. 4 (December 1, 2005): 508–30, https://doi.org/10.1177/0267323105058254.

[136] Aumyo Hassan and Sarah J. Barber, "The Effects of Repetition Frequency on the Illusory Truth Effect," *Cognitive Research: Principles and Implications* 6, no. 1 (May 13, 2021): 38, https://doi.org/10.1186/s41235-021-00301-5.

[137] Brian Russell, "The Five OIE Truths: What It Takes to Be Successful in the Information Environment," *Marine Corps Gazette*, April 2021, https://mca-marines.org/wp-content/uploads/The-Five-OIE-Truths.pdf.

repeating the same message over and over, but rather that *and* variations of the message that carries the same or adjacent informational value. This is better captured by the concept of *volume*.[138] The challenge in achieving volume within large bureaucratic systems—like the national security establishment—is the problem of incentive alignment. As discussed previously, information professionals are trained to conduct assessments seeking to prove or strongly infer that a specific message or information campaign is effective in achieving a desired outcome.[139] In their study on military incentive structures, Blanken and Lepore argue that it is often the case that the principal is unaware that the agent is pursuing the metric whereas the principal is pursuing the goal.[140] This leads to frustration among all parties, because none are satisfied. When incentives are misaligned, it results in ineffective efforts at best and dysfunctional consequences at worst.[141] Therefore, the solution lay in aligning incentives to the reality of what is sought as opposed to the metric that is being measured. This incentive alignment requires untangling measures of effectiveness (MOE) from the concept of winning and a reframing of the purpose of information warfare.

This proposed theory of victory offers a starting point from which to craft information campaigns towards achieving a specified goal. While it may be possible to achieve effects across the range of possible categories as advanced by Lee, it seems most likely that an information campaign would be best directed at achieving *psychological*, *political*, *strategic-choice*, or *coalition effects*. It is up the planner to determine the best course of action to pursue in achieving the strategic effect sought.

D. REGIONAL AND CONTEXTUAL THEORIES OF VICTORY

The GTOV and PTOV advanced in this thesis serve two functions. The GTOV offers information warfare planners and practitioners a starting point from which to

---

[138] See the Russian propaganda model for example: Christopher Paul and Miriam Matthews, *The Russian "Firehose of Falsehood" Propaganda Model: Why It Might Work and Options to Counter It* (RAND Corporation, 2016), https://doi.org/10.7249/PE198.

[139] Paul, *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade*, 2017, 28.

[140] Blanken and Lepore, "Performance Measurement in Military Operations," 17.

[141] Ridgway, "Dysfunctional Consequences of Performance Measurements."

41

conceptualize a way to achieve victory in the information environment. The PTOV builds upon the GTOV and synthesizes current research to propose a possible TOV that can be crafted given contemporary operational environments. Additionally, the PTOV functions at the national level and is best considered as part of an overall political warfare effort against an adversary. That is, it is not simply a model that would be used by a single element of national power, like the Department of Defense or Department of State.

This model acknowledges that where the GTOV is likely static, TOVs should be crafted based on regional and contextual needs. For example, the concept of *volume* as a desired quality in the PTOV may be wholly inappropriate in a specific alternate context. Thus, it is important that the planner consider regional and contextual factors at the outset of crafting a specific theory of victory.

E.   INCREMENTAL DIVIDENDS AND ALTERNATIVE MEASURES

Bradford Lee identifies a unique challenge faced by democracies when pursuing a theory of victory, and that is the need to periodically demonstrate success, or what he calls "incremental dividends."[142] In a democracy, it is not sufficient to describe an end state and then marshal the nation's resources towards that goal indefinitely. Political pressure demands demonstrated progress, and this must be made clear and public. Another way to think about this is the concept of the "small win."[143] For example, the raid that killed Osama bin Laden served as an incremental dividend—or small win—in the Global War on Terrorism. Likewise, the Biden Administration's pre-emptive disclosure of Russian deception efforts at the outset of the Ukraine-Russia War served as a small win in the information war.[144] While these types of events cannot always be engineered, planners must keep in mind that without incremental dividends, critical actors and observers are likely to question the validity of the effort.

---

[142] Lee, "Theories of Victory."

[143] Teresa M. Amabile and Steven J. Kramer, "The Power of Small Wins," *Harvard Business Review*, May 1, 2011, https://hbr.org/2011/05/the-power-of-small-wins.

[144] Jake Harrington, "Intelligence Disclosures in the Ukraine Crisis and Beyond," War on the Rocks, March 1, 2022, https://warontherocks.com/2022/03/intelligence-disclosures-in-the-ukraine-crisis-and-beyond/.

Likewise, adhering to a TOV does not eliminate the need to conduct classic assessments. In fact, assessments will likely become even more important if additional resources are marshaled towards achieving victory in information warfare. To accomplish this in a theory that is fundamentally based on assumptions requires the employment of alternative measures and frameworks that can indicate movement in the right direction. Examples of some alternative measures and frameworks are offered in Appendix A.

The theories of victory proposed (GTOV and PTOV) demonstrate that the question of whether a side is *winning* is different from whether information efforts are *effective* at influencing a specified target audience. The GTOV offers information warfare practitioners a mental framework from which to begin considering how to construct a theory of victory given a specific region or context. The PTOV offers a model that synthesizes the unique challenges faced by democracies in waging information warfare coupled with an understanding and acknowledgement of the current operational environment. With a PTOV developed, we can now attempt to test it through a conceptual wargame.

THIS PAGE INTENTIONALLY LEFT BLANK

IV.   WARGAME

Marketing Executive Paul Davenport: "Well if you had read your industry breakdown you would see that our success in the action figure area has climbed from 27% to 45% in the last two years."

Josh Baskin: "Oh… I still don't get it."

—From the movie *Big*[145]

This chapter discusses the purpose, design, execution, and results of a wargame and wargame simulation created to explore and generate insight into the concepts proposed in this thesis.[146]

A.   PURPOSE

To test the proposed theories of victory for information warfare, I designed a conceptual wargame that sought to simulate the dynamics introduced in the preceding chapters. Creating effective influence or information wargames presents numerous challenges. Unlike conventional military wargames, where the adjudication of effectiveness can more accurately be determined through an objective understanding of military power, determining the effectiveness of information activities requires additional forethought and accepting shortfalls. The design of this wargame benefited greatly from the United Kingdom's Ministry of Defence *Influence Wargaming Handbook* as well as numerous conversations with subject matter experts at the Applied Research Laboratory for Intelligence and Security (ARLIS) at the University of Maryland.[147] The guiding principle in designing the wargame lay in accepting the subjective nature of the game and an attempt to integrate that subjectivity into the wargame itself—an element that approximates the subjectivity in real world

---

[145] *Big* (Twentieth Century Fox, 1988).

[146] The Naval Postgraduate School Internal Review Board reviewed this study and determined that it did not meet the federal definition of "research" as defined under CFR 219 (NPS.2023.0185-DD-N CASE ID 5538).

[147] ARLIS served as an informal sponsor of the wargame and contributed to the thought and design of the game through discussion and advice.

information environments.[148] The purpose of the wargame was to generate insight into two chief questions: 1) what activities contribute to a sense of "winning" or "victory" among the participants, and 2) how do incentives contribute to player choice and game dynamics?

B.   DESIGN

Designing the wargame required conceptualizing the minimum main relevant actors who would likely have a role in carrying out information warfare activities. This required constructing a game that included roles for the actors that determine victory (as argued by Bartholomees and which underpins the GTOV and PTOV). Thus, the game began by constructing a model that captured the phenomena being described (see Figure 3).
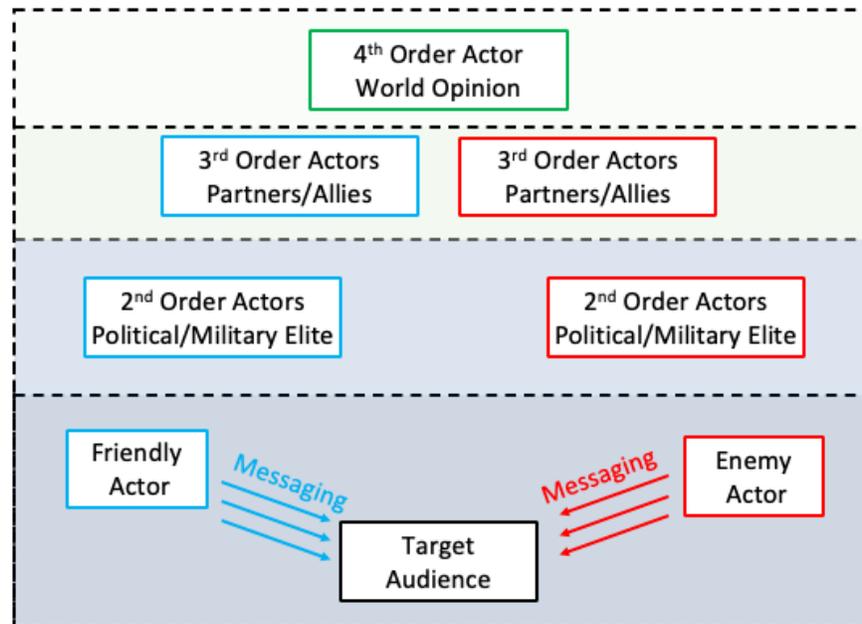
As depicted, there is an "information war" taking place between the Friendly Actor and Enemy Actor, while the subjective assessments of the 2nd/3rd/4th Order Actors determine who is winning.

Figure 3.   A graphical model depicting information activities with Bartholomees' Hierarchy of Victory.[149]

---

[148] Nick Joad, *Influence Wargaming Handbook* (UK Ministry of Defence, 2023), 6.

[149] Adapted from: Bartholomees, "Theory of Victory."

The wargame pits two nations against one another in a fictional information war that takes place over the course of five months. The game is played with a game board, cards that represent different information actions and activities, and dice to introduce random chance and help determine effectiveness of influence activities. Two players (Player 1 and Player 2) represent influence professionals. Their task is to leverage information warfare actions and activities to influence target audiences (TA) to support their nation. Using Bartholomees' Hierarchy of Victory as introduced in Chapter III, the game assigned player roles to represent either 1) political/military elite, 2) partners and allies, and 3) world opinion. Secondary players (Players 3 through Player 8) represent various actors who each have specific roles. Player 3 and Player 4 represent the political/military elite of each nation. They essentially serve as the immediate supervisors of Players 1 and 2. While they are interested in seeing the TAs influenced to support their side, their primary objective is to score as many VICTORY POINTS as possible during the game. VICTORY POINTS are earned by tabulating the subjective assessments of Players 5 through 8 at the completion of a round. Additionally, VICTORY POINTS can be earned by successfully influencing a TA to a certain board piece which would reward a VICTORY POINT. These dynamics—interactions between Players 1 through 4, multiple TAs, and subjective assessments of other players—sought to simulate the complex dynamics of information warfare in a manner that was both comprehensive yet playable.

C. BASIC DESCRIPTION OF GAMEPLAY

The game is based on two (2) opposing information professionals attempting to leverage actions and activities against three (3) fictional target audiences of a general nature. During each round, players employed cards which represented various actions and activities with influence value (see Figure 4 for examples). Each card has a specific value (1-3) and on the card is a title, an emoji which depicts the activity, and a short description of the activity. In alignment with the PTOV, cards with a value of 1 were considered "truth" cards and generally benign in their descriptions and emojis (Press Conference, for example, was a card that described a simple press conference with an emoji of a microphone). Cards with a value of 2 were considered "perception" cards and slightly more aggressive in title, description, and chosen emojis (Controlled Leaks, for example, included an emoji of a

47

water droplet and a description of intentionally leaking confidential information). Cards with a value of 3 were considered "deception" cards and were more aggressive in design (Smear Campaign, for example, included a picture of an angry-faced emoji and a description that indicated the activity). There were also additional rules to playing deception cards which added realistic dynamics to the game. Dice rolls adjudicated the degree to which an action or activity was effective (see Appendix B for additional information).

Figure 4.   Examples of action and activity cards that could be played by Players 1 and 2.

The goal of Players 3 and Player 4 (Political/Military Elite) was to achieve as many VICTORY POINTS as possible, which represent the subjective assessments of the additional actors (Players 5 through 8). Players 3 and 4 also had a small deck of cards (4) which could be played once each during a game to change dynamics of the influence attempts. For example, an AMPLIFY card would double the effect of the friendly information professionals influence on a single TA during a turn, whereas an EXPOSE card would reveal a deception attempt by the adversary player, thus generating negative media. Additionally, Players 3 and 4 were responsible for choosing which cards to re-supply Player 1 and 2 at the end of a turn based on the number of current VICTORY POINTS. These dynamics, while complicating the game, sought to simulate the realities faced by information professionals who are attempting to conduct influence operations

48

while also meeting the needs and demands of their superiors. After the effects of information actions and activities have been adjudicated during a round and the TAs adjusted, Players 5 through 8 observe the board and make a subjective assessment as to which side won the round.[150] Those votes are recorded as VICTORY POINTS to the corresponding team and the next round begins. Further information that describes the wargame in additional detail, to include rules and roles, can be found in Appendix B. See Figure 5 for a graphical depiction of the wargame concept.
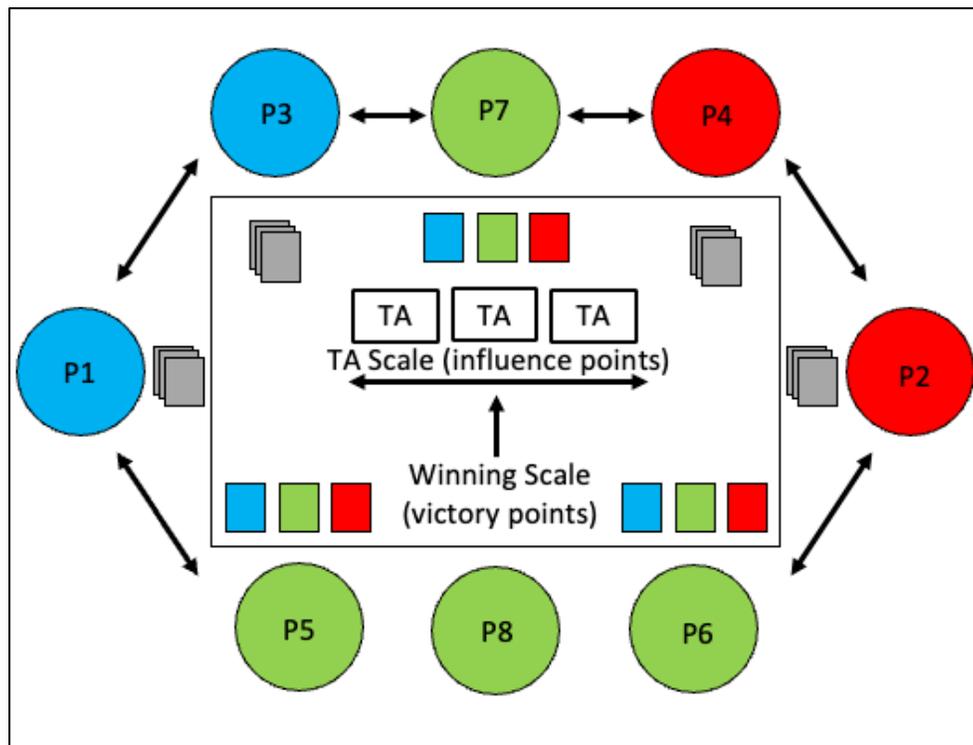
P1 (Blue Influence Professional), P2 (Red Influence Professional), P3 (Blue Political/ Military Elite), P4 (Red Political/Military Elite), P5-8(Neutral Potential Partner/Ally and/ or World Opinion.

Figure 5.   A graphical depiction of the wargame concept.

---

[150] Players 5 through 8 remained outside of the room during gameplay and only entered the room at the completion of all activities.

D. EXECUTION

The wargame was executed multiple times during playtesting at the Naval Postgraduate School with Defense Analysis students to fully develop the game. After development and playtesting was completed, the full game was executed with Naval Postgraduate School students participating in an information operations planning course.[151] Roles were assigned at random and one full game execution resulted in twenty (20) subjective assessments of victory. The game was also demonstrated at the 12th Annual Information Operations and Electronic Warfare Symposium in Honolulu, Hawaii. The full game included eight (8) participants as well as numerous observers who provided additional feedback throughout game play. Additionally, the development of the wargame revealed that an alternative means of capturing subjective assessment data could be generated through the creation of a simulated wargame flipbook which captured static end states that represented similar end states that would normally be experienced through a live play of the wargame. This flipbook simulation did not capture player dynamics or interaction, but rather a subjective assessment of which nation won a given round of information warfare. This resulted in the construction of two (2) different flipbooks which varied slightly in the display of information to isolate the concept of volume.[152] Twenty-two (22) subjective assessments were captured through the flipbook version of the wargame. See Appendix C for more information on the flipbook simulation.

E. RESULTS AND FINDINGS

The results are divided into two separate categories. The first captures the results of the wargame. The second captures the results of subjective assessments collected as part of the flipbook simulation. The findings are discussed in the context of the objectives of the wargame: 1) what activities contribute to a sense of "winning" or "victory" among the participants, and 2) how do incentives contribute to player choice and game dynamics.

---

[151] The majority of the students who participated had experience in information operations which likely influenced the manner in which they played and their subjective assessments. Future researchers would benefit from a diversified pool of players, particularly players outside of the information operations field.

[152] See Appendix C for more information on the flipbook simulation.

1. Wargame

In four of the five rounds, Red maintained a volume advantage. Red also won every round. Two of the four players charged with subjective assessment identified volume as the primary determinant of victory. One player identified the appearance of negative media as the main determinant, ascribing victory to the player who received the least negative media reaction (Red). One player identified the ability to use deception undetected as the primary determinant of victory. Players 1 through 4, who represent the information professional and political/military elite of each side, reported that it became clear through playing the game that influencing the TAs only had a marginal effect on the subjective assessment of Players 5 through 8.[153] Both sides reported that strategies shifted from one focused on maximizing the influence of TAs to maximizing the chance of scoring VICTORY POINTS based on the revealed preferences of Players 5 through 8 over the course of the game. In the end, the Red Team had achieved the most VICTORY POINTS overall, however, the Blue Team was more successful in influencing TAs towards their side. This dynamic demonstrates the difference between achieving demonstrable effects on a TA versus a sense of winning in the information environment among various actors. See Table 4.

Table 4.   Results of Wargame.

Turn	Blue (# Cards Played)	Red (# Cards Played)	Who "won?"	Volume Advantage
1	5	6	Red	Red
2	6	6	Red	Draw
3	4	5	Red	Red
4	3	5	Red	Red
5	3	5	Red	Red

---

[153] The gameboard was covered with a cloth which concealed who the TA supported at the end of the round for three out of the five rounds (Concealed 1–3-5, Revealed 2–4). Playtesting revealed that Players 5 through 8 were likely to ascribe victory based on the physical movement of TAs on the gameboard and ignore other details. Intermittently concealing the gameboard sought to mimic a similar dynamic in the real world, where the actual effects of information activities on a TA might be unknown to various actors.

2. Flipbook Simulation

The flipbook simulation was executed in twenty-two (22) iterations each with a different participant. Participants were students at the Naval Postgraduate School who were asked to participate in the simulation in various classes and events on campus. The pool of participants in the flipbook simulation varied in their level of familiarity with information operations. The main objective of the simulation was to examine how frequently volume correlated with notions of victory. Two of the five rounds provided information that suggested one nation was performing better in the information environment than the other (Round 2 and Round 4). The other three rounds demonstrated no indication as to what the sentiment of the TA was or negative media but included a volumetric advantage towards one side, leaving the participant to decide which side was winning (Rounds 1, 3 and 5). However, in one version of the game (Flipbook A), each information activity included a title and description that corresponded with the cards created for the wargame, whereas in the other (Flipbook B), there is simply a box that reads "IW Activity" for each. The purpose of this distinction was to discover to what extent volume alone corresponded with a subjective notion of victory, with no description of the information actions and activities provided. Thus, Flipbook A served as a control and Flipbook B served as the experiment. See Figure 6 and Figure 7.
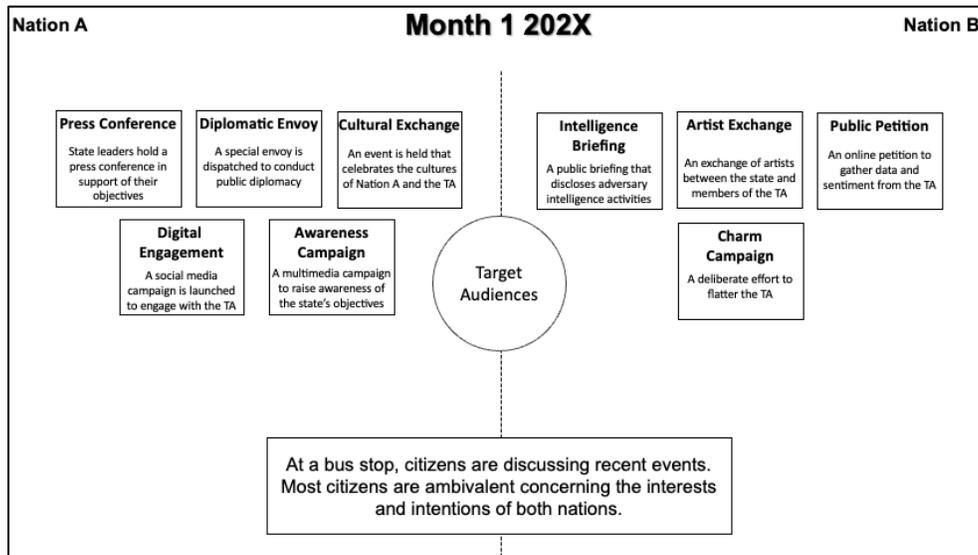
Information warfare actions and activities use the same language as would be depicted in the regular wargame.

Figure 6.   Round 1 of Flipbook A.
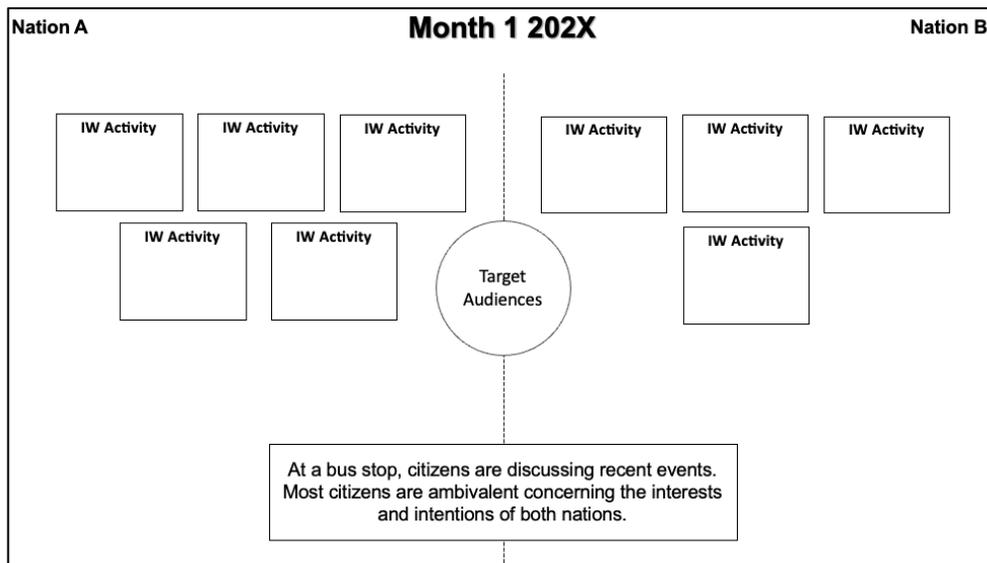
Text is replaced with "IW Activity" but all other indicators (TA sentiment, for example) are left the same as Flipbook A.

Figure 7.   Round 1 of Flipbook B.

The flipbook simulation was designed to deliberately provide the participant with very little information as to the sentiment of the TAs in the rounds which tested for volume

53

(1,3,5). The first round included similar activity from both nations, with Nation A having a slight volume advantage (+1 information activity). It is in this first round where I sought to correlate volume advantage with a subjective notion of victory, as the participants had not yet been exposed to subsequent rounds and there was no lingering effect of what had occurred in previous rounds. My hypothesis was that in the absence of qualitative evidence that indicates TA sentiment or a shift in the dynamic of the information environment, participants would defer to ascribing victory to the nation that accomplished more activities in the given round, in this case, Nation A. The second round featured Nation A employing a deception activity which was revealed in the media and negative sentiment from the TA against Nation A (Nation B is the expected victor). The third round featured Nation A demonstrating a volume advantage (+5) and a TA sentiment that acknowledges the increase in volume (Nation A is the expected victor). The fourth round is a mirror image of round 2, where Nation B attempts a deception activity which is revealed in the media with corresponding negative TA sentiment towards Nation B (Nation A is the expected victor). The fifth and final round is a mirror image of round 3 where Nation B demonstrates a volume advantage (+5) and a TA sentiment that acknowledges the increase in volume (Nation B is the expected victor). See Tables 5 through 7.

Table 5. Results of Flipbook Simulation A (Titles and descriptions included).

Turn	Nation A	Nation B	Scenario / Expected Outcome
1	81.8%	18.2%	Nation A has slight volume advantage (+1) / Nation A Victor
2	9.1%	90.9%	Negative media against Nation A / Nation B Victor
3	100%	0%	Volume advantage by Nation A (+5) / Nation A Victor
4	100%	0%	Negative media against Nation B / Nation A Victor
5	18.18%	81.81%	Volume advantage by Nation B (+5) / Nation B Victor

Table 6.   Results of Flipbook Simulation B (Titles and descriptions removed: "IW Activity" only).

Turn	Nation A	Nation B	Scenario / Expected Outcome
1	45.4%	36%	Nation A has slight volume advantage (+1) / Nation A Victor
2	0%	100%	Negative media against Nation A / Nation B Victor
3	72.2%	27.8%	Volume advantage by Nation A (+5) / Nation A Victor
4	90.9%	9.1%	Negative media against Nation B / Nation A Victor
5	36.4%	63.6%	Volume advantage by Nation B (+5) / Nation B Victor

Table 7.   Results of Flipbook Simulation (Aggregate).

Turn	Nation A	Nation B	Scenario / Expected Outcome
1	63.6%	27.3	Nation A has slight volume advantage (+1) / Nation A Victor
2	4.5%	95.4%	Negative media against Nation A / Nation B Victor
3	86.4%	13.6%	Volume advantage by Nation A (+5) / Nation A Victor
4	95.4%	4.5%	Negative media against Nation B / Nation A Victor
5	27.2%	72.8%	Volume advantage by Nation B (+5) / Nation B Victor

F.   LIMITATIONS

All wargames suffer from limitations, and influence wargames are particularly challenging. One of the main goals of this research is identifying novel ways of assessing the effectiveness of information activities on various target audiences, precisely because it is so difficult. Thus, trying to model the same dynamic in a wargame is challenging because it is difficult to measure it against an objective standard that might exist in objective reality. This research recognizes that attempting to model a concept as vast and wide-reaching as the information environment necessitates simplification and assumed risk.

Additionally, the wargame was executed in its complete state once. Further testing is warranted, an important consideration to keep in mind when making inferences from these initial findings. The scope of the findings are limited to the execution of the specific wargame in the context in which it was played and serves mainly as a starting point in further exploring the theories presented and perhaps as a tool for future researchers exploring theories of victory for information warfare or influence wargames.

Finally, while the execution of the wargame seemed to validate the utility of the medium as a means of testing different theories of victory, the game would require additional refinement to eliminate more gaps and biases prior to further execution. Discussions during pretesting and the wargame itself suggested that some roles might be automated to reduce the burden of recruiting multiple players. The information professional, for example, could simply be represented by a deck of cards which play cards at random or in a pre-determined manner. However, automating any role reduces the usefulness of the game as it relates to understanding how interaction between players and longitudinal strategy is affected by game play. Finally, the game needs to be executed many more times with various audiences to generate the data required to be useful.

G.   DISCUSSION

Rounds 2 through 5 were designed with subtle, but clear indicators towards who might be winning in the information environment. Round 1 was designed to be the most ambiguous while also providing only a slight volume advantage (5 IW activities versus 4 IW activities). The results of the flipbook simulation corresponded with the expected outcomes of rounds 2 through 5, with the majority of participants selecting the expected victor. For round 1 of Flipbook A (IW activities named and described), 81.8% of participants selected Nation A as the victor whereas 18.2% selected Nation B. In Flipbook B, 45.4% selected Nation A as the victor against 36% who selected Nation B. Two (2) participants did not select either nation for round 1 which resulted in the reduced percentages. In the aggregate, 63.63% chose Nation A versus 27.27% who chose Nation B in round 1, suggesting that volume has an informational quality, even when there is no clear evidence that there is an effect on a TA.

Interestingly, other trends emerged through the conduct of the wargame which were unanticipated. The participants were asked at the conclusion of the game which nation "won" overall. 63.63% of participants selected Nation A, 18.18% selected Nation B, and 18.18% indicated that it was a draw. While the reasons provided varied, 45.5% of participants identified the recency of negative media as having the strongest effect on their overall decision. That is, in both flipbooks, round 4 featured negative media against Nation B, whereas negative media against Nation A occurred in round 2. Round 5 featured a strong volumetric advantage in favor of Nation B (+5) but little discernible evidence that this influenced the TA. Future research may benefit from further exploring recency bias as it relates to different aspects of information warfare and subjective notions of victory. For example, to what extent is an increase in volume seen as a means of counteracting negative media, and is this helpful or hurtful?

Finally, while the wargame and flipbook simulation were primarily designed to assist in generating data and insight to support this research, it became clear through numerous iterations of playtesting, demonstrations, and gameplay, that this type of wargame might be beneficial as an educational tool. An information warfare planner or practitioner could employ a version of this game to educate leaders and discover what aspects of information warfare activities are important (or not) in their subjective assessment.

57

THIS PAGE INTENTIONALLY LEFT BLANK

V. RECOMMENDATIONS AND CONCLUSION

Show me the incentive and I will show you the outcome.[154]

—Charlie Munger

The purpose of this chapter is to provide recommendations based on the findings of this research, acknowledge limitations, identity potential opportunities for future research, and conclude the thesis.

A. RECOMMENDATIONS

This thesis makes three broad recommendations. The first is to is to challenge senior leaders responsible for supervising information activities to consider incentivizing volume paired with a theory of victory to ensure more of the right activities occur. The second is to consider that information activities, whether intended or not, can have a powerful effect on the forces that are employing them, and that these effects should be considered into the overall effectiveness of an information activity or campaign. The third is to encourage information practitioners and planners to experiment with alternative means of expressing success.

1. Incentivize Volume In Accordance with a Theory of Victory

Senior leaders that supervise information warfare activities should consider incentivizing volume paired with a theory of victory as proposed as a criterion of professional success. Too often, a nebulous notion of effectiveness is incentivized in a highly subjective and difficult to measure field, which has shown to result in dysfunctional consequences, dishonesty, and timidity. Incentivizing volume does not mean diluting quality, but rather demands that the information warfare practitioner and planner work towards increasing output, and in this case, output in accordance with a theory of victory. The bureaucratic incentive structure is what determines what is most likely to occur at

---

[154] Jack Kelly, "Follow The Incentives And That Will Tell You Everything You Need To Know About A Company's Culture," Forbes, August 18, 2023, https://www.forbes.com/sites/jackkelly/2023/08/18/follow-the-incentives-and-that-will-tell-you-everything-you-need-to-know-about-a-companys-culture/.

scale, and by evaluating performance based on output in accordance with an information warfare theory of victory, the information enterprise stands a better chance of succeeding in an increasingly complex and crowded information environment.

2. Consider the Friendly Force Effects of Information Actions and Activities

Evaluating information warfare actions and activities is primarily focused on the demonstrable effects achieved on a target audience, often adversarial. This research argues that the subjective assessments of external actors is paramount in determining who is "winning." Moreover, information warfare practitioners and planners should consider incorporating the potential effects that these actions and activities have on friendly forces as well in determining their overall effectiveness. Information actions and activities have an inherent morale value that is often completely ignored. The messages, campaigns, and narratives promulgated reflect the values and ideals of the friendly force. While some of these may have a marginal effect on the adversary, they may have a powerful effect on the friendly force. This should be taken into consideration and integrated into any comprehensive assessment.

3. Experiment with Alternative Means of Expressing Success

While there are many techniques that can be used to demonstrate success in information warfare, military doctrine and the wider literature on the subject reveal that there is no objective standard. Demonstrating positive measures of effectiveness (MOE) is often identified as a goal of information warfare, but there is no consensus on which specific method is optimal. The information warfare practitioner and planner have wide latitude in conceptualizing how to demonstrate success, and so long as there is rigor and logic behind the effort, experimentation should be encouraged. Applying the theories of victory proposed in this thesis as a logic model during an information campaign provides all concerned parties with an understanding of the expected outcomes and a pathway for attainment.

B. CONCESSIONS AND LIMITATIONS

Many of the limitations of this thesis have been identified in the relevant section, but they are summarized here. Chief among this thesis' limitations include the significant challenges in influence wargame design and the inability to generalize the results from the execution of the information wargame. Finally, this research recognizes that assessment is an essential part of military operations generally and information operations specifically, and there are instances where achieving accurate assessment is essential to achieving success.

C. FUTURE RESEARCH OPPORTUNITIES

There are clear pathways for future researchers to build upon the work accomplished in this research. First, the information warfare theory of victories proposed might be applied in future scenarios. This might be accomplished most effectively in a larger wargame exercise or as part of a military or interagency training event. For example, an information warfare planning team might attempt to apply these theories during a Combat Training Center (CTC) rotation. Second, the field of information and influence wargames is nascent and there is room for experimentation. Building upon the information wargame developed to support this research would likely result in a refined product which could produce better results. Executing the wargame in support of this research was severely limited by time and resources available. Additionally, future wargames would benefit from a more diverse pool of players. Finally, there is an opportunity to develop the wargame as an educational tool as opposed to a data collection or proof-of-concept tool. It became clear through the conduct of the numerous wargame iterations that participants were learning about different aspects of the field based on the game. A future researcher may use the wargame to educate different populations on the nature of information warfare and perhaps gain further insight into what other aspects of information warfare contribute to a sense of victory.

D. CONCLUSION

This thesis sought to answer the question *how do we know if we're winning in the information environment?* Through an exploration of the literature, it is clear that neatly

defining what is meant by both "winning" and the "information environment" is nebulous and fraught with issues. Within the field of information and influence, assessments are used to demonstrate success. At the same time, the literature recognizes the incredible challenge in assessments as they relate to the information environment. In addressing the research question, this thesis argues that the determining if a side is "winning" in the information environment is a separate question from the assessment of information activities. The theories of victory introduced in this thesis aim to bridge this gap. Whereas information professionals are often interested in demonstrating the effectiveness of their planned and executed activities, the various actors that determine who might be winning at a particular point in time are likely unaware or uninterested in the science and art of the influence game being played. Understanding this, the information professional can and should consider both questions when crafting information activities—what will be the effect on the target audience *and* how will this be perceived by the various actors? What is the performance effect sought and what is the brand effect gained? If both of those answers can be addressed, determining who is winning becomes much easier.

Finally, I recognize that some of the concepts in this thesis cut against the grain of current military doctrine and communication theory, and I do not claim to offer any definitive solutions to the massive problems identified. Instead, the goal of this research is to generate discourse and perhaps cause stakeholders in this field to pause and consider how dynamics might change—both internally and externally—if the concepts in this research were adopted, either in whole or in part. There is room for experimentation in this realm, and limiting ourselves to what has been done before is unlikely to spur innovation or advance the field. Embracing and inviting alternative approaches, especially if unconventional, might just result in gaining the upper hand in information warfare and ultimately assist in winning our nation's wars, both in competition and conflict.

APPENDIX A. ALTERNATIVE MEASURES

While conducting information warfare under the rubric of a theory of victory may serve as a means to achieving goals and objectives, there is still a requirement to demonstrate what Bradford Lee refers to as *incremental dividends* to sustain interest and enthusiasm of a given activity. JP 5-0 emphasizes that there is no single way to conduct assessment, and this appendix aims to provide practitioners with a menu of alternative methods of demonstrating success that may not be neatly tied to classic conceptions of Measures of Performance (MOP) and Measures of Effectiveness (MOE). These can be considered *proxy measures* and can aid the information warfare practitioner in capturing and communicating indicators of success to relevant stakeholders whose knowledge demands often vary. While there is no limit to what techniques and procedures might be used, the ten offered here were discovered during the conduct of this research. Each entry contains basic information regarding the concept and where to read more.

A. CAPACITY / PROCESS / OUTCOME (CPO)
B. BUSINESS PERFORMANCE MANAGEMENT (ALWAYS BE COMPARING)
C. OBJECTIVES AND KEY RESULTS (OKR)
D. BLUE COLLAR MODEL (ROI)
E. TORRENT OF BILE (U2 METHOD)
F. 3RD PERSON EFFECT
G. MEASURES OF PERFORMANCE PLUS (MOP+)
H. INFORMED ESTIMATES (WORKING IN UNCERTAINTY)
I. PRE-BID OPTIMIZATION (USE THE CULTURE CODE)
J. METASCORE (METACRITIC MODEL)

A. CAPACITY / PROCESS / OUTCOME (CPO)

Description: A technique used in public health agencies for categorizing difficult measures. These measures can be mixed to provide a stakeholder with additional information and a more complete picture given a specific context. Additionally, this technique captures data that would be lost if only outcomes were accounted for. The technique categorizes measures in three ways: capacity, process, and outcome.

Capacity Measure: This measures steps taken to conduct a specific activity. For example, the number of personnel trained to conduct a specific task.

- Structures and policies—What policies, permissions, and authorities exist to assist in accomplishing a given goal?

- Skills and resources—What facilities, equipment, or skills are available to accomplish the tasks assigned? How is this changing over time?

- Information and communication—What is the frequency of information flow between relevant stakeholders? What is optimal and how is it changing?

Process Measure: This measures processes conducted by the actor. For example, how long does it take to get a message approved? What is the rate of change since the last action?

Outcome Measure: This measures the results of the activity and resembles MOE. For example, did a target audience conduct the desired behavior?

- Minimum—Did we achieve the minimum acceptable level?

- Challenge—A difficult "high-bar"

- Better than before—Comparing contemporary results to previous results

Example:

Table 8.   Example of Capacity / Process / Outcome.[155]

Measure	Last Month	This Month
# of supporting policies/authorities (Capacity)	9	10 (+1/10%)
# of personnel with required language ability (Capacity)	4	1 (-2/-50%)
Message approval time (Process)	13 days	13 days (no change)
Target audience conducts desired behavior (Outcome)	2	4 (+2 / 100%)

Where to read more:

Patricia Lichiello and Bernard J. Turnock. *Guidebook for Performance Measurement*. University of Washington Health Policy Analysis Program, 1999.

---

[155] Adapted from: Patricia Lichiello and Bernard J. Turnock, *Guidebook for Performance Measurement* (University of Washington Health Policy Analysis Program, 1999).

B. BUSINESS PERFORMANCE MEASUREMENT (ABC—ALWAYS BE COMPARING)

Description: A concept in business performance analysis that highlights the importance of comparison in presenting measurement and assessment data. For assessment data to be useful, it must be compared against some standard. This standard can be measurement against itself, a preset target, or other identified measures, in isolation or combination. The point is to always present the assessment data in comparison. While this method is not specifically intended to be used in an information warfare context, it can be adapted to provide useful information to key stakeholders.

Potential Measurement Categories: The below terms can be used to categorize developed measures and aid in the way they are best presented.

Objective / subjective—Hard data versus sentiment analysis.

Financial / non-financial—Monetary effects versus non-monetary effects.

Lagging / leading—Measures that indicate past performance versus potential future performance.

Complete / incomplete—The data is complete versus incomplete.

Example:

Table 9.   Example of ABC – Always Be Comparing.[156]

Measurement Category	Type of Data	Q1 2023	Q1 2024	Comparison
Objective	Market Share	45%	48%	+3%
Subjective	Audience satisfaction rate	35/60 (polled)	28/60 (polled)	-7 points
Non-Financial	New partners	1	3	+2
Lagging	New campaigns launched	2	1	-1
Leading	Campaigns in development	1	2	+1

---

[156] Adapted from: Kellen, "Business Performance Measurement."

The Importance of Visualization

While presenting data is important, the way that the data is presented is just as—if not more—important.

Data

Visual Form

Raw Data → Data Tables → Visual Structures → Views

Data Transformations   Visual Mappings   View Transformations   User / Task

Human Interaction

Raw data: idiosyncratic formats
Data tables: relations (cases by variables) + metadata
Visual structures: spatial substrates + marks + graphical properties
Views: graphical parameters (position, scaling, clipping, …)

Figure 8.   Depicting the process of presenting information for stakeholders.[157]

Where to read more:

Vince Kellen. "Business Performance Measurement." *DePaul University*, February 2003.

---

[157] Source: Kellen.

C. OBJECTIVES AND KEY RESULTS (OKR)

Description: A business management practice used by major corporations to focus and assess efforts. The technique is simple and process oriented. It consists of establishing OBJECTIVES and KEY RESULTS. Objectives roughly correspond to MOE, although they can be less concrete. Key Results must be tangible, and the system allows for a gap between how achieving the key results will translate into achieving the objective. The value of the OKR system is the way that it focuses and incentivizes activity instead of crafting the perfect objective.

Objective: Identifies the WHAT—the thing that is to be achieved. These are concrete but can also be inspirational and lofty.

Key Results: Identifies the HOW—specific actions that are taken to get to the objective. The key results are always measurable and verifiable.

Example

> **OBJECTIVE**
> Continue to build a world-class team.
>
> **KEY RESULTS**
> 1. Recruit 10 engineers [0.8].
> 2. Hire commercial sales leader [1.0].
> 3. One hundred percent of candidates feel they had a well-organized, professional experience even if Nuna does not extend an offer [0.5].
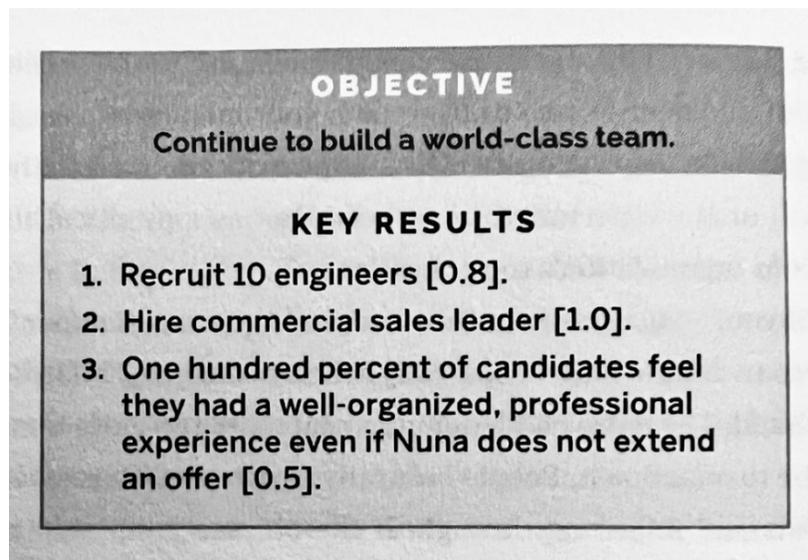
The number indicates the current degree to which those key results have been accomplished. Notice the simplicity of this technique.

Figure 9.   Example of an Objective and Key Result.[158]

---

[158] Source: Doerr, *Measure What Matters*.

Where to read more:

Doerr, John. *Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs*. New York: Portfolio/Penguin, 2018.

D. BLUE COLLAR MODEL (ROI)

Description: An alternative approach to assessment that uses the Return on Investment (ROI) of resources in a given area of responsibility (AOR). The technique was developed by planners at SOCCENT when they found that traditional assessment approaches rooted in MOPs and MOEs did not satisfy the knowledge demands of their key stakeholders. The technique is based on following seven guiding principles:

1. Answer the question of interest to the command.
2. Tie all analysis to clearly defined and agreed-upon requirements.
3. Be proactive about data collection.
4. Be value-added at multiple levels.
5. Build collaborative networks to execute, verify, and validate analysis.
6. Resist the tyranny of averages and aggregation wherever possible.
7. Understand that products matter, but not as much as the process.[159]

---

[159] Source: Steven Hendrickson and Riley Post, "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study," National Defense University Press, accessed July 30, 2022, https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2076070/a-blue-collar-approach-to-operational-analysis-a-special-operations-case-study/ https%3A%2F%2Fndupress.ndu.edu%2FMedia%2FNews%2FNews-Article-View%2FArticle%2F2076070%2Fa-blue-collar-approach-to-operational-analysis-a-special-operations-case-study%2F.
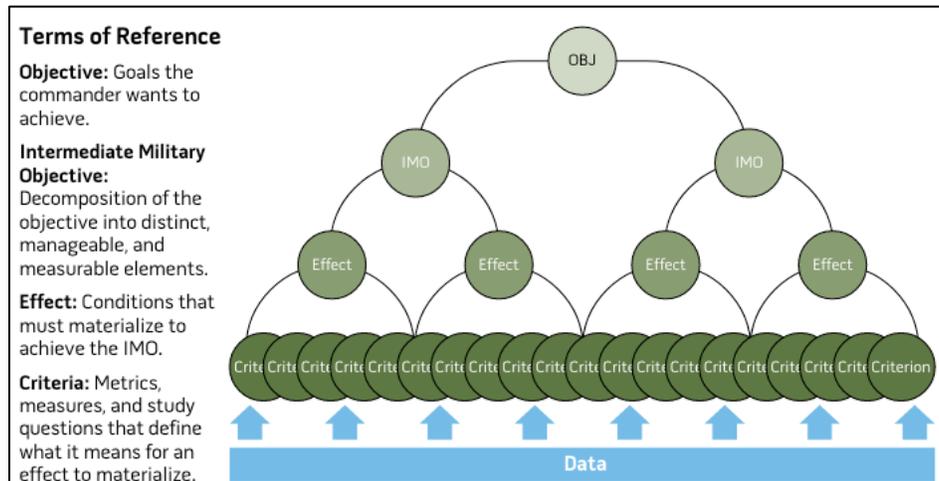
Figure 10. The analysis framework used by Henrickson and Post.[160]

The importance of visualization and narrative

The authors of the "blue collar approach" emphasize the importance of presenting analysis with supporting visualizations and narrative. Data divorced from its context is unlikely to be useful to a command.

Where to read more:

Hendrickson, Steven J, and Riley Post. "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study." *Joint Forces Quarterly*, no. 96 (2020).

---

[160] Source: Hendrickson and Post, "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study."

E.   TORRENT OF BILE (U2 METHOD)

Description: A simple method of determining if actions and activities are having an effect by measuring the reactions of adversaries. The Irish rock band U2 measured the effectiveness of their impact in regard to particular political activities by identifying how strong the opposition was to its activities. For example, when the band began making statements against Irish terror groups, they determined they were having an effect by seeing how strong the reactions were against them. Later, as they became more mainstream, they measured success in more traditional ways, like ticket and album sales.

Applicability: Integrating negative reactions of information actions and activities serves as an additional indicator that there may be "something there." Unless the objective of the operation was to garner a negative reaction, this is likely useful in presenting a more robust picture of what is occurring in the information environment. Additionally, it may be useful in revealing certain activities that strike a nerve with the intended target audiences. That information is likely useful in the development of future operations. This technique is related to the 3rd Person Effect.

Figure 11.   Examples of Chinese officials reacting to U.S. claims concerning TikTok.[161]

Where to read more:

Doerr, John. *Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs*. New York: Portfolio/Penguin, 2018.

---

[161] Source: Lindsay Gorman and Etienne Soula, "Chinese State Propaganda Goes to Bat for TikTok," *Alliance For Securing Democracy* (blog), April 6, 2023, https://securingdemocracy.gmfus.org/china-propaganda-tiktok-hearing/.

73

F.   3RD PERSON EFFECT

Description: A theory which posits that most people believe they are not likely to be susceptible to propaganda but have concerns that others are very susceptible. This phenomenon can lead to leaders taking measures to counteract their fears of what they believe the effect of that propaganda might be.

Examples:

World War II: An allied operation suggested that German Luftwaffe pilots could defect to the allies, leading to the Germans taking strict anti-defection measures which may have had an effect on morale.

Iran-Iraq War: A similar deception operation is purported to have taken place during the Iran-Iraq War. The Iraqis supposedly leaked information indicating that there was an Iranian F-14 pilot who was planning to defect. As a result, the Iranians grounded the entire fleet in response.[162]

Applicability: While the 3rd Person Effect can be used from the outset as part of a deliberate information campaign to achieve some objective, gathering assessment information that indicates the adversary is adjusting personnel, resources, or policies as a result of an information action or activity should be integrated into a comprehensive assessment.

Where to read more:

Davison, W. Phillips. "The Third-Person Effect in Communication." *The Public Opinion Quarterly* 47, no. 1 (1983): 1–15.

---

[162] Aram Shabanian, "How the Iran-Iraq War Shaped the Modern World," Angry Planet, accessed November 3, 2023, https://play.acast.com/s/warcollege/howtheiran-iraqwarshapedthemodernworld.

G.   MEASURES OF PERFORMANCE PLUS (MOP+)

Description: A novel way of communicating effectiveness in the absence of hard measures of effectiveness. Measures of Performance Plus (MOP+) uses traditional MOP (# of activities) but pairs it with another variable to add additional weight. Ideally, MOP+ would be paired with a theory of victory—the logic model on which the assumptions about how actions and activities will influence dynamics as discussed in this research. The "plus" indicates that there is additional analysis underlying the MOP which adds weight to its usefulness. For example, the "plus" may indicate that this particular MOP in this particular context has additional data or analysis which indicates its rate of success. When MOE is difficult or impossible to produce, providing MOP+ along with additional indicators provides stakeholders with positive information that the course of action is relevant.

Example

Table 10.   Example of "a way" to capture the concept of MOP+.

Traditional MOP	Quantity	MOP+ Factor (ex: engagement rate)	Weighting Factor	MOP+
Social media posts	500	3%	2	530
Pamphlets disseminated	6,000	10%	1.5	6900
TV ads	15	45%	1	21.75

MOP # x MOP Plus Factor x Weighting Factor = MOP+).

H.   INFORMED ESTIMATES (WORKING IN UNCERTAINTY)

Description: A series of techniques that can be used to present an informed estimate of a given information action or activity when providing clear assessment data is difficult. The goal of this process is to acknowledge uncertainty but demonstrate confidence in the effort. This technique should be paired with another proxy measure to bolster its effectiveness.

<u>Techniques</u> (adapted from work done by Matthew Leitch)

- Be justly confident in your analysis

- Don't take too long

- Reassure, but be clear that there is uncertainty

- Demonstrate your experience and knowledge on the subject

- Demonstrate responsibility

- Address uncertainty, but have a sensible plan for how to manage it

- Identify evidence behind any projections

- Given informed predictions, not guesses

- Don't overwhelm with worries

Example

This technique can be presented visually and through narration to provide the informed estimate. One technique might be generating a scale. See Table 11.

Table 11.   An example of an informed estimate scale.[163]

Verbal	Numerical
Very Low Confidence	0-25%
Low Confidence	26-50%
Medium Confidence	51-75%
High Confidence	76-100%

Where to read more:

Galef, Julia. *The Scout Mindset: Why Some People See Things Clearly and Others Don't.* New York: Portfolio, 2021.

Leitch, Matthew. "How to Be Convincing When You Are Uncertain." *Working in Uncertainty* (blog), 2003. http://www.workinginuncertainty.co.uk/convincing.

---

[163] Adapted from: Matthew Leitch, "How to Be Convincing When You Are Uncertain," *Working in Uncertainty* (blog), 2003, http://www.workinginuncertainty.co.uk/convincing.

I. PRE-BID OPTIMIZATION (USE THE CULTURE CODE)

Description: A compound technique that leverages pre-testing of information actions and activities with mixed modeling to indicate the likelihood of success. This technique places an emphasis on conducting rigorous and thorough assessment of information actions and activities in pre-testing to generate data and insight into its potential efficacy. This data can be used to offer predictive success. Understanding that capturing MOE is challenging, this method is paired with a mixed modeling method which generates data by compiling multiple indicators and assessments to demonstrate effectiveness. The value in pre-bid optimization is the acknowledgement that generating effective MOE once the campaign is "live" is exceedingly difficult, thus generating data in a controlled environment can indicate if the campaign might have the desired effects, whether they can be adequately measured or not.

Where to read more:

Binet, Les, and Peter Field. *The Long and the Short of It: Balancing Short and Long-Term Marketing Strategies*. London: Institute of Practitioners in Advertising, 2013.

Rapaille, Clotaire. *The Culture Code: An Ingenious Way to Understand Why People around the World Buy and Live as They Do*. New York: Broadway Books, 2007.

J. METASCORE (METACRITIC MODEL)

Description: This model attempts to mimic the scoring system of Metacritic, a website that provides a score for various media (movies, video games, television shows, etc.) that integrates the weighted opinions of various actors to arrive at a single score. For example, the raw value of an esteemed film critic would be weighted heavier than the review of a single person who rates the same film.

How to implement: An information warfare planner could develop their own proprietary assessment criteria during the initial planning phase. Data that is likely to be collected can be assigned weights based on the needs of the command and the objectives. Once agreed upon, this system can be used to gauge the efficacy of the information campaign.

Example: The wargame used in this research presents an opportunity to demonstrate how this system may be used.

Table 12.   An example of how to generate a Metascore.[164]

Actor	Weight	Raw Score	Weighted Score
Target Audience	1	66	66
Political/Military Elite	.5	80	40
Partners and Allies	.5	70	35
World Opinion	.3	65	19.5
Elite Media	.3	10	3
Metascore	2.6	291	63

The weight of each actor is determined and the raw score is generated based on the assessment of the team. Then, the raw score is multiplied by the weight to get the weighted score. Finally, the sum of the weighted score is divided by the sum of the weights. In this case, a Metascore of 63 is generated.

---

[164] Adapted from: Metacritic, "About Us," Metacritic, accessed November 8, 2023, https://www.metacritic.com/about-us/.

Where to read more:

Metacritic. "About Us." Accessed November 8, 2023. https://www.metacritic.com/about-us/.

APPENDIX B. WARGAME RULES, ROLES, AND INSTRUCTIONS

This appendix contains the rules, roles, and instructions for the information wargame developed to support this research.

A. INFORMATION WAR RULES

1. **Introduction:**

Game Description

A conceptual information warfare card game that pits two players against each other (P1 & P2). Their task is to leverage information warfare actions and activities (AA) to influence target audiences (TA) to support their side. Each card has a specific ATTRIBUTE/TYPE and a value of INFLUENCE POINTS which determines the effect on the TA. Secondary players (P3-P8) represent various actors.

Game Objective

The objective of P1 & P2 is to achieve the greatest effect on the most TAs. The objective of P3 & P4 is achieve the most VICTORY POINTS for their side. P5 through P8 are external actors who award VICTORY POINTS based on their subjective assessment.

Game Purpose

This game has two primary goals: 1) generate insight into what actions and activities contribute to a sense of victory (or "winning") among various actors, and 2) generate insight into how incentive structures effect gameplay in a conceptual information warfare wargame. A secondary goal is to provide a starting point from which to conceptualize and design future information warfare-themed wargames.

2. **Components:**

1 x Game Board

3 x Target Audience Game Pieces

2 x Information Warfare Game Decks (P1-P2) (these cards will be used by Player 1 and Player 2 to INFLUENCE target audiences)

2 x Support Game Decks (P3-P4) (4 cards per, these cards are used by Player 3 and Player 4 to assist their agents in achieving victory)

5 x Victory Game Decks (P3-P8) (these cares are used by Players 3 through Player 8 to indicate their subjective assessment of the played round)

1 x Dice

8 x Data Collection Sheets (used by each player to record their play)

8 x Post Game Survey (used by each player to capture post-game reflections)

1 x VICTORY POINTS Scoreboard (used to record VICTORY POINTS)

3. **Setup:**

At game start, players are arranged around a table, preferably with BLUE TEAM co-located and RED TEAM co-located. The gameboard sits between players and the TAs all begin in the neutral (middle) position. Cards are distributed to all players. P1 and P2 each begin with 10 cards drawn at random from the deck.

4. **Game Play:**

The goal of Player 1 and Player 2 is to INFLUENCE as many TAs to support their side as possible. The adversary player will also be attempting to INFLUENCE the same TAs to support their side. Players will have to strategize how to best employ their cards against multiple TAs during multiple turns to have the greatest effect.

The goal of Players 3–4 is to achieve as many VICTORY POINTS as possible for their side. Players 5–8 observe he results of a round played and then play their cards to display their reaction to the action or activity.

The game consists of five (5) turns. Each turn consists of 4 Phases (INFLUENCE, SUPPORT, REVEAL, CONSOLIDATE):

1) **Phase 1 INFLUENCE**.

    (a) Player 1 and Player 2 choose which cards to play and play their cards against select TAs.

    (b) Player 1 and Player 2 record their move on the Data Collection Sheet.

82

(c) After Player 1 and Player 2 have played their cards, they will roll dice against each card/TA that they played cards against to determine the EFFECTIVENESS of the AA.

(d) If the dice roll records an effect, the TA is moved immediately for each card/dice roll until all cards are exhausted.

(e) BLUE will go first, followed by RED. After TAs have been adjusted, the cards played by each side will be displayed at the bottom of the board for the REVEAL ROUND.

2) **Step 2 SUPPORT.**

(a) Player 3 and Player 4 will have the option to play one of their 4 SUPPORT cards (AMPLIFY/SUPPRESS/EXPOSE/CONCEAL).

(b) They must make their card choice (if any) during Step 1 in support of their side.

(c) Once used, the card cannot be used again.

(d) SUPPORT cards will achieve their intended effect without a dice roll.

3) **Step 3 REVEAL.**

(a) Once the TAs have moved, Players 5–8 will observe the board, choose their card and play it sequentially (5,6,7,8).

(b) Players 5–8 will record their move on the Data Collection Sheet.

(c) O/C will record and adjust VICTORY POINTS on the VP SCORECARD.

4) **Step 4 CONSOLIDATE.**

(a) Player 3 and Player 4 will award cards to Player 1 and Player 2 additional based on the current VP SCORECARD. VP cannot be less than 1.

Influencing the TA

        Influencing the TA is determined by two factors: 1) the INFLUENCE POINTS (IP) of a given card, and 2) rolling dice (see Dice Chart). **There is a maximum of 3 IP that can be played against a single TA in a single round.** For example, if Player 1 plays a card or cards with an IP value of 2 and rolls a 2 their TA will move a total of 1 space.

Table 13.   Dice matrix.

Dice Roll	Influence Value
1	0%
2	20%
3	40%
4	60%
5	80%
6	100%

IP / Perc.	0%	20%	40%	60%	80%	100%
1	0	.2	.4	.6	.8	1
2	0	.4	.8	1.2	1.6	2
3	0	.6	1.2	1.8	2.4	3

IP / Roll	1	2	3	4	5	6
1	0	0	0	1	1	1
2	0	1	1	1	2	2
3	0	1	1	2	2	3

        # of spaces a TA moves is determined by reaching greater than .5.

        Player 3 and Player 4 can play SUPPORT Cards through the game. The effects of the SUPPORT Cards are as follows:

        AMPLIFY—This card doubles the effectiveness of a single round on a specific TA. For example, if Player 1 successfully achieves IP of 2 on a TA, an AMPLIFY card will bump that to 4.

        SUPPRESS—This card nullifies the effect of an enemy action on a TA. For example, if Player 2 (RED) achieves an IP of 3 on a TA and Player 3 (BLUE) plays the SUPPRESS card on that action, the event is cancelled out and the TA does not move.

84

EXPOSE—This card exposes a DECEPTION card during the reveal phase. DECEPTION CARDS are normally not displayed during the reveal phase.

CONCEAL—This card protects a DECEPTION card from being revealed. DECEPTION CARDS are normally not displayed during the reveal phase and this action protects these cards from being revealed through chance or enemy action.

DECEPTION CARDS

These are cards that have high IP values (3). When played, they can only be played against a single TA with no supporting cards. The IP value achieved will follow the same dice roll scheme as regular cards. However, an additional dice roll will determine whether these cards will be revealed. Rolling a 3 through 6 results in no revelation. Rolling a 1 or 2 results in revelation.

VICTORY CARDS

Player 5 though Player 8 use cards to register their sentiment. They have two types of cards; cards that register positive sentiment and cards that register neutral sentiment. Each card registers the sentiment with a short description of an action that catalogs the sentiment. Players will decide their sentiment given their observation of the round and choose the card most appropriate. Players 5 through 8 will have access to the entire deck of VICTORY CARDS and can play them more than once as desired. Only one VICTORY card can be played per round by an actor.

RULES

- Players 1 and 2 can play as many cards as they want in a round so long as the total IP for a given TA does not exceed 3. However, they will only draw cards during the CONSOLIDATION phase based on their total number of VP.

- Each side begins with 3 VP, and the VPs will reset to 3 at the start of each round.

- When DECEPTION cards are revealed, a MEDIA card is drawn that depicts the result that will be displayed during the REVEAL phase.

5. **Interactions:**

Players 1 through 4 can speak with one another in the game and cooperate as desired so long as they work towards achieving their objectives. However, Players cannot tell each other what specific cards they have or what cards they intend on playing.

Players 5 through 8 will step away from the table at the start of each round and only return during the REVEAL phase to register their sentiment. At this time, they can share brief words with one another. A timer managed by the O/C will constrain the amount of time for discussion.

6. **Winning Conditions:**

The game will be played for the complete 5 rounds. At the conclusion of the game, the # of spaces that the three TAs have moved towards a player will be tallied as a score. This will determine the INFLUENCE SCORE and whichever player has the highest INFLUENCE SCORE wins the INFLUENCE GAME. The total VICTORY POINTS for each side will be tallied to reveal who the VICTOR is. Finally, the INFLUENCE SCORE will be combined with the VICTORY SCORE to determine who actually won the game.

For example, TEAM BLUE managed to obtain an INFLUENCE SCORE of 4. This means, that between all three TAs, TEAM BLUE had a +4 advantage in INFLUENCE. TEAM BLUE also obtained 8 total VICTORY POINTS, whereas TEAM RED obtained 10 total VICTORY POINTS. In this scenario, TEAM BLUE would have a total score of 12 (4 IP + 10 VP) and TEAM RED would have a total score of 10 (0 IP and 10 VP). The wargame would determine that TEAM BLUE was victorious.

But were they really….?

7. **Variants:**

Full Game (8 players + 1 O/C). Game plays as described above.

Autonomous Player 1 and Player 2 (minimum 3 players, maximum 5 + 1 O/C). In this version of the game, Player 1 and Player 2 are automated. Player 3 and Player 4 will select one card at random to play against each TA. All other rules remain the same.

<u>10</u>. **Glossary:**

Actions and Activities (AA): These are depicted on the Information Warfare cards along with a title, illustration, and short description. They represent actions and activities that may have effects in the information environment and ultimately a target audience.

Target Audience (TA): A specific grouping of people based on common characteristics. In this game, there are three TAs representing different actors in the environment.

B.   PLAYER 1 (TEAM BLUE INFLUENCE PROFESSIONAL)

Who You Are: You are an INFLUENCE PROFESSIONAL. Your objective is to INFLUENCE multiple TARGET AUDIENCES (TAs) to support your team (TEAM BLUE).

How to Win: At the end of five (5) rounds, you want to have a net positive INFLUENCE SCORE (the TARGET AUDIENCES are more supportive of TEAM BLUE than TEAM RED). There is a secondary score called VICTORY POINTS. VICTORY POINTS contribute to the number of cards you can draw at the conclusion of each round. VICTORY POINTS are accrued through the displayed sentiment of other players.

Other Players:

TEAM BLUE

Player 3 (BLUE MILITARY/POLITICAL ELITE): This is your boss. They want to see you succeed but are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT you through playing special cards during the game.

TEAM RED

Player 2 (RED INFLUENCE PROFESSIONAL): This is your adversary. Their goal is the same as yours: INFLUENCE TAs to support their side (TEAM RED).

Player 4 (RED MILITARY/POLITICAL ELITE): This is your adversary's boss. They want to see your adversary succeed, and they are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT your adversary through playing special cards during the game.

TEAM GREEN

Player 5 through 8 (Potential PARTNER/ALLY / WORLD OPINION): This is a potential ally/partner to your cause. They will share their sentiment on how they perceive the information war to be progressing. Through their sentiment, your team can be awarded VICTORY POINTS which contribute to your overall score and your ability to draw additional cards.

Dice Guide

IP / Roll.	1	2	3	4	5	6
1	0	0	0	1	1	1
2	0	1	1	1	2	2
3	0	1	1	2	2	3

DECEPTION CARDS

These are cards that have high IP values (3). When played, they can only be played against a single TA with no supporting cards. The IP value achieved will follow the same dice roll scheme as regular cards. However, an additional dice roll will determine whether these cards will be revealed. Rolling a 3 through 6 results in no revelation. Rolling a 1 or 2 results in revelation.

C.   PLAYER 2 (TEAM RED INFLUENCE PROFESSIONAL)

Who You Are: You are an INFLUENCE PROFESSIONAL. Your objective is to INFLUENCE multiple TARGET AUDIENCES (TAs) to support your team (TEAM RED).

How to Win: At the end of ten rounds, you want to have a net positive INFLUENCE SCORE (the TARGET AUDIENCES are more supportive of TEAM RED than TEAM BLUE). There is a secondary score called VICTORY POINTS. VICTORY POINTS contribute to the number of cards you can draw at the conclusion of each round. VICTORY POINTS are accrued through the displayed sentiment of other players.

Other Players:

TEAM RED

Player 4 (RED MILITARY/POLITICAL ELITE): This is your boss. They want to see you succeed but are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT you through playing special cards during the game.

TEAM BLUE

Player 2 (BLUE INFLUENCE PROFESSIONAL): This is your adversary. Their goal is the same as yours: INFLUENCE TAs to support their side (TEAM BLUE).

Player 4 (BLUE MILITARY/POLITICAL ELITE): This is your adversary's boss. They want to see your adversary succeed, and they are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT your adversary through playing special cards during the game.

TEAM GREEN

Player 5 through 8 (Potential PARTNER/ALLY / WORLD OPINION): This is a potential ally/partner to your cause. They will share their sentiment on how they perceive the information war to be progressing. Through their sentiment, your team can be awarded VICTORY POINTS which contribute to your overall score and your ability to draw additional cards.

Dice Guide

IP / Roll.	1	2	3	4	5	6
1	0	0	0	1	1	1
2	0	1	1	1	2	2
3	0	1	1	2	2	3

DECEPTION CARDS

These are cards that have high IP values (3). When played, they can only be played against a single TA with no supporting cards. The IP value achieved will follow the same dice roll scheme as regular cards. However, an additional dice roll will determine whether these cards will be revealed. Rolling a 3 through 6 results in no revelation. **Rolling a 1 or 2 results in revelation.**

D. PLAYER 3 (TEAM BLUE MILITARY/POLITICAL ELITE)

Who You Are: You represent the MILITARY/POLITICAL ELITE. Your primary objective is to support acquire as many VICTORY POINTS as possible while supporting Player 1 (INFLUENCE PROFESSIONAL) to INFLUENCE multiple TARGET AUDIENCES (TAs) to support your team (TEAM BLUE).

How to Win: At the end of ten rounds, you want TEAM BLUE to have the most VICTORY POINTS and INFLUENCE POINTS.

Other Players:

TEAM BLUE

Player 1 (BLUE INFLUENCE PROFESSIONAL): This is a subordinate. Their goal is to influence multiple TARGET AUDIENCES to support TEAM BLUE. You can support Player 1 through playing SUPPORT cards during the game.

TEAM RED

Player 2 (RED INFLUENCE PROFESSIONAL): This is your adversary. Their goal is the same as yours: INFLUENCE TAs to support their side (TEAM RED).

Player 4 (RED MILITARY/POLITICAL ELITE): This is your adversary's boss. They want to see your adversary succeed, and they are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT your adversary through playing special cards during the game.

TEAM GREEN

Player 5 through 8 (Potential PARTNER/ALLY / WORLD OPINION): This is a potential ally/partner to your cause. They will share their sentiment on how they perceive the information war to be progressing. Through their sentiment, your team can be awarded VICTORY POINTS which contribute to your overall score and your ability to draw additional cards.

Your cards are described below. You can play as many cards as you want per round, but once you use a card, they cannot be used again.

92

AMPLIFY—This card doubles the effectiveness of a single round on a specific TA. For example, if Player 1 successfully achieves IP of 2 on a TA, an AMPLIFY card will bump that to 4.

SUPPRESS—This card nullifies the effect of an enemy action on a TA. For example, if Player 2 (RED) achieves an IP of 3 on a TA and Player 3 (BLUE) plays the SUPPRESS card on that action, the event is cancelled out and the TA does not move.

EXPOSE—This card exposes a DECEPTION card during the reveal phase. DECEPTION CARDS are normally not displayed during the reveal phase.

CONCEAL—This card protects a DECEPTION card from being revealed. DECEPTION CARDS are normally not displayed during the reveal phase and this action protects these cards from being revealed through chance or enemy action.

E. PLAYER 4 (TEAM RED MILITARY/POLITICAL ELITE)

Who You Are: You represent the MILITARY/POLITICAL ELITE of TEAM RED. Your primary objective is to acquire as many VICTORY POINTS as possible while supporting Player 2 (INFLUENCE PROFESSIONAL) to INFLUENCE multiple TARGET AUDIENCES (TAs) in support of your team (TEAM RED).

How to Win: At the end of ten rounds, you want TEAM RED to have the most VICTORY POINTS and INFLUENCE POINTS.

Other Players:

TEAM BLUE

Player 1 (BLUE INFLUENCE PROFESSIONAL): This is your adversary's INFLUENCE PROFESSIONAL. Their goal is to INFLUENCE TAs to support their side (TEAM RED).

Player 3 (BLUE MILITARY/POLITICAL ELITE): This is your adversary's boss. They want to see your adversary succeed, and they are also concerned with maintaining positive sentiment across other actors. They have the ability to SUPPORT your adversary through playing special cards during the game.

TEAM RED

Player 2 (RED INFLUENCE PROFESSIONAL): This is a subordinate. Their goal is to influence multiple TARGET AUDIENCES to support TEAM BLUE. You can support Player 1 through playing SUPPORT cards during the game.

TEAM GREEN

Player 5 through 8 (Potential PARTNER/ALLY / WORLD OPINION): This is a potential ally/partner to your cause. They will share their sentiment on how they perceive the information war to be progressing. Through their sentiment, your team can be awarded VICTORY POINTS which contribute to your overall score and your ability to draw additional cards.

Your cards are described below. You can play as many cards as you want per round, but once you use a card, they cannot be used again.

94

AMPLIFY—This card doubles the effectiveness of a single round on a specific TA. For example, if Player 1 successfully achieves IP of 2 on a TA, an AMPLIFY card will bump that to 4.

SUPPRESS—This card nullifies the effect of an enemy action on a TA. For example, if Player 2 (RED) achieves an IP of 3 on a TA and Player 3 (BLUE) plays the SUPPRESS card on that action, the event is cancelled out and the TA does not move.

EXPOSE—This card exposes a DECEPTION card during the reveal phase. DECEPTION CARDS are normally not displayed during the reveal phase.

CONCEAL—This card protects a DECEPTION card from being revealed. DECEPTION CARDS are normally not displayed during the reveal phase and this action protects these cards from being revealed through chance or enemy action.

F.   PLAYER 5 THROUGH 8 (GREEN PARTNER/ALLY / WORLD OPINION)

Who You Are: You represent a potential PARTNER/ALLY and/or WORLD OPINION to the two teams. Your role is to make subjective assessments as to who is winning at the conclusion of each round.

Other Players:

TEAM BLUE

Player 1 (BLUE INFLUENCE PROFESSIONAL): This is TEAM BLUE'S INFLUENCE PROFESSIONAL. Their goal is to INFLUENCE TAs to support their side (TEAM BLUE).

Player 3 (BLUE MILITARY/POLITICAL ELITE): This is team BLUE'S MILITARY/ POLITICAL ELITE. They want to secure VICTORY for TEAM BLUE.

TEAM RED

Player 2 (RED INFLUENCE PROFESSIONAL): This is TEAM RED'S INFLUENCE PROFESSIONAL. Their goal is to INFLUENCE TAs to support their side (TEAM RED).

Player 4 (RED MILITARY/POLITICAL ELITE): This is team RED'S MILITARY/ POLITICAL ELITE. They want to secure VICTORY for TEAM RED.

TEAM GREEN

Player 5 through 8 (Potential PARTNER/ALLY / WORLD OPINION): This is a potential ally/partner to the main players. They will share their sentiment on how they perceive the information war to be progressing. Through their sentiment, they award VICTORY POINTS which contribute to the overall score and your ability to draw additional cards.

Cards:

VICTORY CARDS

Player 5 though Player 8 use cards to register their sentiment. They have two types of cards; cards that register <u>positive sentiment</u> (marked with blue) and cards that register <u>neutral sentiment (marked with green)</u>. Each card registers the sentiment with a short description

96

of an action that catalogs the sentiment. Players will decide their sentiment given their observation of the round and choose the card most appropriate. Players 5 through 8 will have access to the entire deck of VICTORY CARDS and can play them more than once as desired. Only one VICTORY CARD can be played per round by an actor.

G.   RULES QUICK START SHEET

- P1 & P2 start w/ 10 cards drawn at random
- P3 & P4 choose which cards to give P1 & P2 based on VP at the end of the round
- VP minimum is 3
- BLUE and RED play their cards FACE DOWN against TAs. Once all cards are played, BLUE turns over cards and begins rolling dice AGAINST EACH CARD.
- P3 (BLUE POL/MIL ELITE) can choose to play AMPLIFY / CONCEAL and P4 (RED POL/MIL ELITE) can choose to play SUPPRESS / EXPOSE cards during this phase
- Once BLUE is finished, RED turns over cards and begins rolling dice AGAINST EACH CARD
- P4 (RED POL/MIL ELITE) can choose to play AMPLIFY / CONCEAL and P3 (BLUE POL/MIL ELITE) can choose to play SUPPRESS / EXPLORE cards during this phase
- Once round is complete, all cards played will be arranged at the bottom of the board along with any MEDIA / TA SENTIMENT cards
- Board is covered during Turn 1, 3, and 5 REVEAL Phases / Board is revealed during Turn 2 and 4 REVEAL Phases

Dice Rolls

IP / Roll	1	2	3	4	5	6
1	0	0	0	1	1	1
2	0	1	1	1	2	2
3	0	1	1	2	2	3

SUPPORT CARDS

AMPLIFY—This card doubles the effectiveness of a single round on a specific TA. For example, if Player 1 successfully achieves IP of 2 on a TA, an AMPLIFY card will bump that to 4.

SUPPRESS—This card nullifies the effect of an enemy action on a TA. For example, if Player 2 (RED) achieves an IP of 3 on a TA and Player 3 (BLUE) plays the SUPPRESS card on that action, the event is cancelled out and the TA does not move.

EXPOSE—This card exposes a DECEPTION card during the reveal phase. DECEPTION CARDS are normally not displayed during the reveal phase.

CONCEAL—This card protects a DECEPTION card from being revealed. DECEPTION CARDS are normally not displayed during the reveal phase and this action protects these cards from being revealed through chance or enemy action.

DECEPTION CARDS

98

When playing a DECEPTION CARD an additional dice roll will determine whether these cards will be revealed.

1-2—REVELATION + MEDIA CARD

3-6—NO REVELATION + NO MEDIA CARD

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C. FLIPBOOK SIMULATION

The flipbook simulation was designed to capture subjective assessments of victory among participants. It is modeled from potential end states that could be achieved during an execution of the wargame. Two flipbook simulations were generated. The first (Flipbook A) contains information warfare activity titles and descriptions. The second (Flipbook B) replaces this information with 'IW Activity.' All other aspects of the flipbooks are the same. Each round appeared as it does on the following pages, with the top side of the flipbook displaying the history of the previous rounds and the bottom side displaying the current round. The last image depicts the full history of the information war.

101

A. FLIPBOOK A

Figure 12.   Month 1 Flipbook A

102

Figure 13.   Month 2 Flipbook A

Figure 14.   Month 3 Flipbook A

History

Player A

Press Conference	Digital Engagement	Diplomatic Envoy
Awareness Campaign	Cultural Exchange	

1

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Player B

Intelligence Briefing	Artist Exchange	Public Petition
	Charm Campaign	

1

2

Intl. Broadcasts	Supt. to Dark Proxies	Training Seminar
	Sports Diplomacy	

At a community gathering, citizens are discussing recent events. Some express discontent with Nation A for the insensitivity of recent information efforts.

Q&A Session	Fact Check	Historical Reminder
	NGO Partnership	

2

3

Digital Engagement	Intl. Broadcasts	Training Seminar	Cultural Exchange
Diplomatic Envoy	Show of Force	Intelligence Briefing	Press Conference

At a local college, students in class discuss recent events. Some students comment that they notice seeing a lot more information from Nation A recently.

Security Exchange	Artist Exchange	Intl. Broadcasts

3

4

4

5

5

Nation A   **Month 4 202X**   **Nation B**

Historical Reminder
A release of information to remind audiences of the past

Charm Campaign
A deliberate effort to flatter the TA

Q&A Session
A public event where officials answer questions from the TA

Target Audiences

Public Statement
Public officials stating the official position of the government

Disinformation Campaign
Deliberately spreading false information

Awareness Campaign
A multimedia campaign to raise awareness of the state's objectives

At a community gathering, citizens are discussing recent events. Some express discontent with Nation B for the insensitivity of recent information efforts.

Negative Media
A news report that reveals Nation B's information efforts are garnering negative attention

Figure 15.   Month 4 Flipbook A

105

Figure 16.   Month 5 Flipbook A

106

History

Player A

Player B

1

Press Conference | Digital Engagement | Diplomatic Envoy

Awareness Campaign | Cultural Exchange

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Intelligence Briefing | Artist Exchange | Public Petition

Charm Campaign

1

2

Intl. Broadcasts | Supt. to Dark Proxies | Training Seminar

Sports Diplomacy | Negative Media

At a community gathering, citizens are discussing recent events. Some express discontent with Nation A for the insensitivity of recent information efforts.

Q&A Session | Fact Check | Historical Reminder

NGO Partnership

2

3

Digital Engagement | Intl. Broadcasts | Training Seminar | Cultural Exchange

Diplomatic Envoy | Show of Force | Intelligence Briefing | Press Conference

At a local college, students in class discuss recent events. Some students comment that they notice seeing a lot more information from Nation A recently.

Security Exchange | Artist Exchange | Intl. Broadcasts

3

4

Historical Reminder | Charm Campaign | Q&A Session

At a community gathering, citizens are discussing recent events. Some express discontent with Nation B for the insensitivity of recent information efforts.

Negative Media

Public Statement | Disinfo Campaign | Awareness Campaign

4

5

Intelligence Briefing | Artist Exchange | Public Petition

At a local college, students in class discuss recent events. Some students comment that they notice seeing a lot more information from Nation B recently.

Press Conference | Digital Engagement | Awareness Campaign | Press Conference

Press Conference | Diplomatic Envoy | Cultural Exchange | Press Conference

5

Figure 17.   Full History Flipbook A

B.   FLIPBOOK B

History

Player A   Player B

1   1

2   2

3   3

4   4

5   5

Nation A   **Month 1 202X**   **Nation B**

IW Activity   IW Activity   IW Activity   IW Activity   IW Activity   IW Activity

IW Activity   IW Activity   IW Activity

Target Audiences

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Figure 18.   Month 1 Flipbook B

History

Player A

IW Activity | IW Activity | IW Activity
IW Activity | IW Activity

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Player B

IW Activity | IW Activity | IW Activity
IW Activity

1

2

3

4

5

1

2

3

4

5

Nation A

Month 2 202X

Nation B

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

Target Audiences

Negative Media

A news report that reveals Nation A's information efforts are garnering negative attention

At a community gathering, citizens are discussing recent events. Some express discontent with Nation A for the insensitivity of recent information efforts.

Figure 19.   Month 2 Flipbook B

Player A

IW Activity | IW Activity | IW Activity

IW Activity | IW Activity

1

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Player B

IW Activity | IW Activity | IW Activity

IW Activity

1

IW Activity | IW Activity | IW Activity

IW Activity | IW Activity

2

At a community gathering, citizens are discussing recent events. Some express discontent with Nation A for the insensitivity of recent information efforts.

IW Activity | IW Activity | IW Activity

IW Activity

2

Negative Media

3 3

4 4

5 5

Nation A

Month 3 202X

Nation B

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

IW Activity

Target Audiences

IW Activity

IW Activity

IW Activity

At a local college, students in class discuss recent events. Some students comment that they notice seeing a lot more information from Nation A recently.

Figure 20. Month 3 Flipbook B

110

Player A

IW Activity | IW Activity | IW Activity

IW Activity | IW Activity

1

At a bus stop, citizens are discussing recent events. Most citizens are ambivalent concerning the interests and intentions of both nations.

Player B

IW Activity | IW Activity | IW Activity

IW Activity

1

2

IW Activity | IW Activity | IW Activity

IW Activity | IW Activity

At a community gathering, citizens are discussing recent events. Some express discontent with Nation A for the insensitivity of recent information efforts.

IW Activity | IW Activity | IW Activity

IW Activity

2

3

IW Activity | IW Activity | IW Activity | IW Activity

IW Activity | IW Activity | IW Activity | IW Activity

At a local college, students in class discuss recent events. Some students comment that they notice seeing a lot more information from Nation A recently.

IW Activity | IW Activity | IW Activity

3

4

4

5

5

Nation A

Month 4 202X

Nation B

IW Activity

IW Activity

IW Activity

Target Audiences

IW Activity

IW Activity

IW Activity

At a community gathering, citizens are discussing recent events. Some express discontent with Nation B for the insensitivity of recent information efforts.

Negative Media

A news report that reveals Nation B's information efforts are garnering negative attention

Figure 21.   Month 4 Flipbook B

111

Figure 22.   Month 5 Flipbook B

112

Figure 23.   Full History Flipbook B

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Amabile, Teresa M., and Steven J. Kramer. "The Power of Small Wins." *Harvard Business Review*, May 1, 2011. https://hbr.org/2011/05/the-power-of-small-wins.

Andreski, Stanislav. *Social Sciences as Sorcery*. London: Deutsch, 1972.

Armstrong, Matt. "No, We Do Not Need to Revive the U.S. Information Agency." War on the Rocks, November 12, 2015. https://warontherocks.com/2015/11/no-we-do-not-need-to-revive-the-u-s-information-agency/.

Austin, Lloyd. *National Defense Strategy*. Washington, D.C.: Department of Defense, 2022.

Barnett, Paul. "If What Gets Measured Gets Managed, Measuring the Wrong Thing Matters." *Corporate Finance Review*, February 2015. https://static.store.tax.thomsonreuters.com/static/relatedresource/CMJ--15-01%20sample-article.pdf.

Bartholomees, J. Boone. "Theory of Victory." *The U.S. Army War College Quarterly: Parameters* 38, no. 2 (May 1, 2008). https://doi.org/10.55540/0031-1723.2419.

Behn, Robert. "Why Measure Performance? Different Purposes Require Different Measures." *Public Administration Review*, no. 63 (October 2003).

Bernstein, Joseph. "Bad News: Selling the Story of Disinformation." *Harper's Magazine*, August 9, 2021. https://harpers.org/archive/2021/09/bad-news-selling-the-story-of-disinformation/.

Bicknell, John, Matt Armstrong, and Chris Paul. "The Cognitive Crucible Episode #128 Matt Armstrong and Chris Paul on the U.S. Information Agency and Foreign Policy." Podcast. The Cognitive Crucible. Accessed August 15, 2023. https://information-professionals.org/episode/cognitive-crucible-episode-128/.

Bicknell, John, and Brian Schweers. "The Cognitive Crucible Episode #102 Brian Schweers on the All Domain Effects Team Concept." Podcast. Accessed March 31, 2023. https://information-professionals.org/episode/cognitive-crucible-episode-102/.

Bicknell, John, Eric Wallace, Derek Elliot, and Ron Walters. "The Cognitive Crucible Episode #125 Journey from Conception through JP 3-04." Podcast. The Cognitive Crucible. Accessed March 27, 2023. https://information-professionals.org/episode/cognitive-crucible-episode-125/.

Big. Twentieth Century Fox, 1988.

Binet, Les, and Peter Field. *The Long and the Short of It: Balancing Short and Long-Term Marketing Strategies*. London: Institute of Practitioners in Advertising, 2013.

Bing West. "Three Wars, No Victory – Why?" *The National Review* (blog), February 18, 2021. https://www.nationalreview.com/magazine/2021/03/08/three-wars-no-victory-why/.

Blanken, Leo J., and Jason J. Lepore. "Performance Measurement in Military Operations: Information versus Incentives." *Defence and Peace Economics* 26, no. 5 (September 3, 2015): 516–35. https://doi.org/10.1080/10242694.2014.949548.

Bradt, George. "Wanamaker Was Wrong -- The Vast Majority Of Advertising Is Wasted." Forbes, September 14, 2016. https://www.forbes.com/sites/georgebradt/2016/09/14/wanamaker-was-wrong-the-vast-majority-of-advertising-is-wasted/.

Caulkin, Simon. "The Rule Is Simple: Be Careful What You Measure." *The Observer*, February 10, 2008, sec. Business. https://www.theguardian.com/business/2008/feb/10/businesscomment1.

Chase, Jennifer. "Turn Performance Marketing Into Performance Branding." Adweek, August 17, 2022. https://www.adweek.com/performance-marketing/turn-performance-marketing-into-performance-branding/.

Cheng, Dean. "Chinese of Views of Information and Future Warfare." Video, 52:04, Purdue University, February 15, 2023. https://www.cerias.purdue.edu/assets/video/secsem/secsem_20230215.mp4.

Clausewitz, Carl von, Michael Howard, Peter Paret, Bernard Brodie, Rosalie West, and Carl von Clausewitz. *On War*. First paperback printing. Princeton, N.J: Princeton University Press, 1989.

Confessore, Nicholas. "Cambridge Analytica and Facebook: The Scandal and the Fallout So Far." *The New York Times*, April 4, 2018, sec. U.S. https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html.

Connable, Ben, Michael McNerney, William Marcellino, Aaron Frank, Henry Hargrove, Marek Posard, S. Zimmerman, Natasha Lander, Jasen Castillo, and James Sladden. *Will to Fight: Analyzing, Modeling, and Simulating the Will to Fight of Military Units*. RAND Corporation, 2018. https://doi.org/10.7249/RR2341.

Cullis, Jonathan O. "Not Everything That Can Be Counted Counts….." *British Journal of Haematology* 177, no. 4 (2017): 505–6. https://doi.org/10.1111/bjh.14626.

Daddis, Gregory A. *Withdrawal: Reassessing America's Final Years in Vietnam*. New York, NY: Oxford University Press, 2017.

116

Daniels, Jody. "Changing Culture: Moving from Metrics to Readiness." *United States Army Reserve*, August 2022. https://www.usar.army.mil/Portals/98/Documents/ CAR/Changing%20Culture%20FINAL%2004052022.pdf?ver=Kz91X-Qs2nuVg-IrGeqLRQ%3D%3D.

Deep, Alex. "'What Winning Looks Like' Narrative for Integrated Deterrence and Strategic Competition." Joint Special Operations University, 2023.

Department of the Army. *Operations*. FM 3-0. Washington, D.C.: Department of the Army, 2022.

Doerr, John. *Measure What Matters: How Google, Bono, and the Gates Foundation Rock the World with OKRs*. New York: Portfolio/Penguin, 2018.

Drucker, Peter F. *Management: Tasks, Responsibilities, Practices*. 1st ed. New York: Harper & Row, 1974.

Eady, Gregory, Tom Paskhalis, Jan Zilinsky, Richard Bonneau, Jonathan Nagler, and Joshua A. Tucker. "Exposure to the Russian Internet Research Agency Foreign Influence Campaign on Twitter in the 2016 U.S. Election and Its Relationship to Attitudes and Voting Behavior." *Nature Communications* 14, no. 1 (January 9, 2023): 62. https://doi.org/10.1038/s41467-022-35576-9.

Falkenrath, Richard A. "Opinion | From Bullets to Megabytes." *The New York Times*, January 27, 2011, sec. Opinion. https://www.nytimes.com/2011/01/27/opinion/ 27falkenrath.html.

Fallows, James. "The Tragedy of the American Military." *The Atlantic*, February 2015. https://www.theatlantic.com/magazine/archive/2015/01/the-tragedy-of-the-american-military/383516/.

Fuisz, John. "Lessons from Anheuser-Busch." Information Professionals Association, July 16, 2023. https://information-professionals.org/lessons-from-anheuser-busch/.

Galef, Julia. *The Scout Mindset: Why Some People See Things Clearly and Others Don't*. New York: Portfolio, 2021.

Goldstein, Josh A, Girish Sastry, Micah Musser, Renée DiResta, Matthew Gentzel, and Katerina Sedova. "Generative Language Models and Automated Influence Operations: Emerging Threats and Potential Mitigations." *Internet Observatory*, January 2023. https://cyber.fsi.stanford.edu/io/publication/generative-language-models-and-automated-influence-operations-emerging-threats-and.

Gordon, Philip H. "Can the War on Terror Be Won?" *Foreign Affairs* 86, no. 6 (December 2007).

Gorman, Lindsay, and Etienne Soula. "Chinese State Propaganda Goes to Bat for TikTok." *Alliance For Securing Democracy* (blog), April 6, 2023. https://securingdemocracy.gmfus.org/china-propaganda-tiktok-hearing/.

Haines, John. "How, Why, and When Russia Will Deploy Little Green Men – and Why the U.S. Cannot." Foreign Policy Research Institute, March 9, 2016. https://www.fpri.org/article/2016/03/how-why-and-when-russia-will-deploy-little-green-men-and-why-the-us-cannot/.

Harley, Aurora. "Vanity Metrics: Add Context to Add Meaning." Nielsen Norman Group, October 13, 2019. https://www.nngroup.com/articles/vanity-metrics/.

Harrington, Jake. "Intelligence Disclosures in the Ukraine Crisis and Beyond." War on the Rocks, March 1, 2022. https://warontherocks.com/2022/03/intelligence-disclosures-in-the-ukraine-crisis-and-beyond/.

Harris, T. George. "The Post-Capitalist Executive: An Interview with Peter F. Drucker." *Harvard Business Review*, May 1, 1993. https://hbr.org/1993/05/the-post-capitalist-executive-an-interview-with-peter-f-drucker.

Hassan, Aumyo, and Sarah J. Barber. "The Effects of Repetition Frequency on the Illusory Truth Effect." *Cognitive Research: Principles and Implications* 6, no. 1 (May 13, 2021): 38. https://doi.org/10.1186/s41235-021-00301-5.

Heckl, K.S. "Cancellation of the January 2020 Marine Corps Joint Memorandum on Definitions for Information Related Terms." Official memorandum, Washington, D.C.: United States Marine Corps, 2023.

Hendrickson, Steven J, and Riley Post. "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study." *Joint Forces Quarterly*, no. 96 (2020).

Hendrickson, Steven, and Riley Post. "A Blue-Collar Approach to Operational Analysis: A Special Operations Case Study." National Defense University Press. Accessed July 30, 2022. https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2076070/a-blue-collar-approach-to-operational-analysis-a-special-operations-case-study/https%3A%2F%2Fndupress.ndu.edu%2FMedia%2FNews%2FNews-Article-View%2FArticle%2F2076070%2Fa-blue-collar-approach-to-operational-analysis-a-special-operations-case-study%2F.

Jankowicz, Nina. "Opinion | The Only Way to Defend Against Russia's Information War." *The New York Times*, September 25, 2017, sec. Opinion. https://www.nytimes.com/2017/09/25/opinion/the-only-way-to-defend-against-russias-information-war.html.

Joad, Nick. *Influence Wargaming Handbook*. UK Ministry of Defence, 2023.

118

Joint Chiefs of Staff. *Information in Joint Operations*. Washington, D.C.: Joint Chiefs of Staff, 2022.

———. *Joint Planning*. JP 5-0. Washington, D.C.: Joint Chiefs of Staff, 2020.

Joint Special Operations University. "What Is Strategic Influence?" Video, 51:58, YouTube, February 28, 2023. https://www.youtube.com/watch?v=_Cu_rMRvB7U.

Kellen, Vince. "Business Performance Measurement." *DePaul University*, February 2003.

Kelly, Jack. "Follow The Incentives And That Will Tell You Everything You Need To Know About A Company's Culture." Forbes, August 18, 2023. https://www.forbes.com/sites/jackkelly/2023/08/18/follow-the-incentives-and-that-will-tell-you-everything-you-need-to-know-about-a-companys-culture/.

Kennan, George. "Organizing Political Warfare." Official memorandum, Washington, DC: Department of State, 1948.

King, Iain. "Toward an Information Warfare Theory of Victory." Modern War Institute, October 19, 2020. https://mwi.usma.edu/toward-an-information-warfare-theory-of-victory/.

Kruglanski, Arie W., Martha Crenshaw, Jerrold M. Post, and Jeff Victoroff. "What Should This Fight Be Called? Metaphors of Counterterrorism and Their Implications." *Psychological Science in the Public Interest* 8, no. 3 (2007): 97–133.

Lattman, Peter. "The Origins of Justice Stewart's 'I Know It When I See It.'" *Wall Street Journal*, September 27, 2007, sec. Law Blog. https://www.wsj.com/articles/BL-LB-4558.

Lee, Bradford. "Theories of Victory." Presentation, Naval War College, Rhode Island, November 22, 2013.

Lee, Bradford A. "American Grand Strategy and the Unfolding of the Cold War 1945–1961." In *Successful Strategies: Triumphing in War and Peace from Antiquity to the Present*, edited by Richard Hart Sinnreich and Williamson Murray, 353–402. Cambridge: Cambridge University Press, 2014. https://doi.org/10.1017/CBO9781107477315.013.

Leitch, Matthew. "How to Be Convincing When You Are Uncertain." *Working in Uncertainty* (blog), 2003. http://www.workinginuncertainty.co.uk/convincing.

Levine, Michael. "The Limits of Victory: Evaluating the Employment of Military Power." *Prism* 10, no. 1 (September 2022). https://ndupress.ndu.edu/Media/News/News-Article-View/Article/3175408/the-limits-of-victory-evaluating-the-employment-of-military-power/https%3A%2F%2Fndupress.ndu.edu%2FMedia%2FNews%2FNews-Article-View%2FArticle%2F3175408%2Fthe-limits-of-victory-evaluating-the-employment-of-military-power%2F.

Lippmann, Walter. *Public Opinion*, 1921. https://www.gutenberg.org/ebooks/6456/pg6456.html.utf8.

Lopez, Todd. "Low-Level Commanders Need Authority to Counter Information Operations, Northcom Leader Say." U.S. Department of Defense, September 22, 2021. https://www.defense.gov/.

Losey, Stephen. "Defense Department Took 22 Days to Create 'Silly Bear' Meme to Roast Russian Hackers." Military.com, March 25, 2021. https://www.military.com/daily-news/2021/03/25/defense-department-took-22-days-create-silly-bear-meme-roast-russian-hackers.html.

Macri, Kate. "SOCOM Says Learning to Leverage Data Is Key for AI." GOVCIO Media and Research, June 10, 2022. https://governmentciomedia.com/socom-says-learning-leverage-data-key-ai.

Mansoor, Peter. "Why Can't America Win Its Wars?" *Hoover Institution*, March 10, 2016. https://www.hoover.org/research/why-cant-america-win-its-wars.

McClenon, Julia M. "We're WEIRD and Our Adversaries Know It: Psychological Biases Leave the United States Vulnerable to Cognitive Domain Operations." Irregular Warfare Initiative, June 7, 2023. https://irregularwarfare.org/articles/were-weird-and-our-adversaries-know-it-psychological-biases-leave-the-united-states-vulnerable-to-cognitive-domain-operations/.

McConville, James. "40th Chief of Staff of the Army Final Message to the Army Team." Official memorandum, 2023. https://www.army.mil/article/268883/40th_chief_of_staff_of_the_army_final_message_to_the_army_team.

McInnis, Kathleen, Seth Jones, and Emily Harding. "NAFO and Winning the Information War: Lessons Learned from Ukraine." Center for Strategic and International Studies, October 5, 2022. https://www.csis.org/analysis/nafo-and-winning-information-war-lessons-learned-ukraine.

Merriam-Webster, s.v. "war." Accessed August 12, 2023. https://www.merriam-webster.com/dictionary/war.

Metacritic. "About Us." Accessed November 8, 2023. https://www.metacritic.com/about-us/.

120

Mooney, Michael. "A Military Assessment of the Islamic State's Evolving Theory of Victory." War on the Rocks, June 26, 2017. https://warontherocks.com/2017/06/a-military-assessment-of-the-islamic-states-evolving-theory-of-victory/.

Morabito, Daniel. "National Security and the Third Road Threat: Toward a Comprehensive Theory of Information Warfare." *Air and Space Power Journal*, Fall 2021.

Myers, Steven Lee. "A Panel to Combat Disinformation Becomes a Victim of It." *The New York Times*, May 18, 2022, sec. Technology. https://www.nytimes.com/2022/05/18/technology/disinformation-governance-board.html.

Nagl, John A. "Why America's Army Can't Win America's Wars." *The U.S. Army War College Quarterly: Parameters* 52, no. 3 (August 25, 2022). https://doi.org/10.55540/0031-1723.3164.

Nakashima, Ellen. "Pentagon Opens Sweeping Review of Clandestine Psychological Operations." *Washington Post*, September 20, 2022. https://www.washingtonpost.com/national-security/2022/09/19/pentagon-psychological-operations-facebook-twitter/.

National Defense Authorization Act for Fiscal Year 2023, Text for H.R.7900-117th Congress (2021-2022): National Defense Authorization Act for Fiscal Year 2023 § (2022). http://www.congress.gov/.

O'Connor, Eileen, and David Hoffman. "Opinion | Media in Iraq: The Fallacy of Psy-Ops." *The New York Times*, December 16, 2005, sec. Opinion. https://www.nytimes.com/2005/12/16/opinion/media-in-iraq-the-fallacy-of-psyops.html.

Parker, William. "Mix, Message, Measure and Start Thinking Like a 'Big Brand.'" Adweek, October 25, 2022. https://www.adweek.com/performance-marketing/mix-message-and-measure-to-start-thinking-like-a-big-brand/.

Patricia Lichiello and Bernard J. Turnock. *Guidebook for Performance Measurement*. University of Washington Health Policy Analysis Program, 1999.

Paul, Christopher. *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Desk Reference*. Santa Monica, CA: RAND, 2015.

———. *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Worked Example*. RAND Corporation, 2017. https://www.rand.org/pubs/research_reports/RR809z4.html.

Paul, Christopher, and Miriam Matthews. *The Russian "Firehose of Falsehood" Propaganda Model: Why It Might Work and Options to Counter It*. RAND Corporation, 2016. https://doi.org/10.7249/PE198.

Paul, Christopher, Jessica Yeats, Colin Clarke, and Miriam Matthews. *Assessing and Evaluating Department of Defense Efforts to Inform, Influence, and Persuade: Desk Reference*. Santa Monica, CA: RAND, 2015.

Permanent Select Committee on Intelligence (Democrats). Exposing Russia's Effort to Sow Discord Online: The Internet Research Agency and Advertisements, Permanent Select Committee on Intelligence, House of Representatives. Accessed November 29, 2022. https://democrats-intelligence.house.gov/social-media-content/.

Pomerleau, Mark. "DOD Making Progress in Information Operations but More Improvement Is Needed, Experts Say." DefenseScoop, November 4, 2022. https://defensescoop.com/2022/11/04/dod-making-progress-in-information-operations-but-more-improvement-is-needed-experts-say/.

———. "Why Is the United States Losing the Information War?" C4ISRNet, October 5, 2020. https://www.c4isrnet.com/information-warfare/2020/10/05/why-is-the-united-states-losing-the-information-war/.

Porche, Isaac, Christopher Paul, and Michael York. *Redefining Information Warfare Boundaries for an Army in a Wireless World*. Santa Monica, CA: RAND, 2013.

Reuters. "U.S. General in Afghanistan Apologizes for 'Offensive' Leaflet." *The New York Times*, September 6, 2017. https://www.nytimes.com/2017/09/06/world/asia/afghanistan-taliban-leaflet-us-apology-dog.html.

Ridgway, V. F. "Dysfunctional Consequences of Performance Measurements." *Administrative Science Quarterly* 1, no. 2 (1956): 240–47. https://doi.org/10.2307/2390989.

Rosenberger, Laura, and Lindsay Gorman. "How Democracies Can Win the Information Contest." *The Washington Quarterly* 43, no. 2 (April 2, 2020): 75–96. https://doi.org/10.1080/0163660X.2020.1771045.

Ruggiero, Ivana Stradner, Anthony. "America Is Still Losing the Information War." *Foreign Policy* (blog), March 10, 2023. https://foreignpolicy.com/2023/03/10/us-russia-information-war-bioweapon-biolab-conspiracy-theory-tucker/.

Russell, Brian. "The Five OIE Truths: What It Takes to Be Successful in the Information Environment." *Marine Corps Gazette*, April 2021. https://mca-marines.org/wp-content/uploads/The-Five-OIE-Truths.pdf.

Scher, Adam. "The Collapse of the Iraqi Army's Will to Fight: A Lack of Motivation, Training, or Force Generation?" Army University Press, February 2016. https://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2016-Online-Exclusive-Articles/Collapse-of-the-Iraqi-Army/.

Shabanian, Aram. "How the Iran-Iraq War Shaped the Modern World." Angry Planet. Accessed November 3, 2023. https://play.acast.com/s/warcollege/howtheiran-iraqwarshapedthemodernworld.

Shanker, Thom, and Eric Schmitt. "THREATS AND RESPONSES: HEARTS AND MINDS; Firing Leaflets and Electrons, U.S. Wages Information War." *The New York Times*, February 24, 2003, sec. World. https://www.nytimes.com/2003/02/24/world/threats-responses-hearts-minds-firing-leaflets-electrons-us-wages-information.html.

Singer, P. W., and Emerson T. Brooking. *Likewar: The Weaponization of Social Media*. First Mariner Books edition. Boston New York: Mariner Books, 2019.

Stahl, Michael. "Make the Most of the Marketing Mix Modeling Renaissance." Adweek, March 7, 2023. https://www.adweek.com/media/marketing-mix-modeling/.

Steuter, Erin, and Deborah Wills. "At War with Metaphor: Media, Propaganda, and Racism in the War on Terror." *Choice Reviews Online* 46, no. 07 (March 1, 2009): 46–3669-46–3669. https://doi.org/10.5860/CHOICE.46-3669.

Stumbord, Michael, Timothy Blasius, Steven Full, and Christine Hughes. "Goodhart's Law: Recognizing and Mitigating the Manipulation of Measures in Analysis." Center for Naval Analyses, September 26, 2022.

The Fog of War. Radical Media, 2003. http://www.netflix.com.

Theohary, Catherine. "Defense Primer: Information Operations." In Focus. Congressional Research Service, December 9, 2022. https://crsreports.congress.gov/product/pdf/IF/IF10771.

———. "Information Warfare: Issues for Congress." *Information Warfare*, March 5, 2018.

Truman, Harry. "Executive Order 9877: Functions of the Armed Forces | Harry S. Truman." Accessed July 27, 2023. https://www.trumanlibrary.gov/library/public-papers/159/executive-order-9877-functions-armed-forces.

United States Marine Corps. *Information*. MCDP 8. Washington, D.C.: United States Marine Corps, 2022.

United States Marine Corps | Marine Recruiting | Marines. "What Is the Marine Corps? | Marines." Accessed July 27, 2023. https://www.marines.com/about-the-marine-corps/who-are-the-marines.html.

United States Special Operations Command. "USSOCOM Enterprise Priorities." Accessed August 10, 2023. https://www.socom.mil/about.

U.S. Air Force. "Our Mission." U.S. Air Force. Accessed July 27, 2023.
     https://www.airforce.com/mission.

U.S. Army. "Purpose & Legacy of the U.S. Army." U.S. Army. Accessed July 27, 2023.
     https://www.goarmy.com/explore-the-army/purpose-legacy.html.

U.S. Navy. "About the U.S. Navy." U.S. Navy. Accessed July 27, 2023.
     https://www.navy.mil/About/.

Vasterman, Peter L.M. "Media-Hype: Self-Reinforcing News Waves, Journalistic
     Standards and the Construction of Social Problems." *European Journal of
     Communication* 20, no. 4 (December 1, 2005): 508–30. https://doi.org/10.1177/
     0267323105058254.

Visger, Mark. "Static Inertia: The Legal Challenges to Making Progress on an Effective
     Military Information Strategy." Modern War Institute, January 4, 2022.
     https://mwi.usma.edu/static-inertia-the-legal-challenges-to-making-progress-on-
     an-effective-military-information-strategy/.

White, Sarah P. "The Organizational Determinants of Military Doctrine: A History of
     Army Information Operations." Texas National Security Review, January 5,
     2023. https://tnsr.org/2023/01/the-organizational-determinants-of-military-
     doctrine-a-history-of-army-information-operations/.

Wong, Leonard, and Stephen J. Gerras. "Lying to Ourselves: Dishonesty in the Army
     Profession:" Fort Belvoir, VA: Defense Technical Information Center, February
     1, 2015. https://doi.org/10.21236/ADA615274.

Yorke, Claire, Demi Starks, Edwards Mortimer, and Emma De Angelis. "Episode 2:
     Emotion as a Policy Tool." Podcast. RUSI Journal Radio. Accessed March 31,
     2023. https://www.rusi.org/podcasts/rusi-journal-radio/episode-2-emotion-policy-
     tool.

INITIAL DISTRIBUTION LIST

1.   Defense Technical Information Center
        Fort Belvoir, Virginia

2.   Dudley Knox Library
        Naval Postgraduate School
        Monterey, California