



Students move pieces around the board during a war game based on a Pacific conflict while attending Air War College at Maxwell Air Force Base, Alabama, 21 December 2023. Game phases are actioned with a deck of cards, spawning new and viable assets with each play. These items can range from instituting an element of air superiority to launching an information campaign. (Photo by Billy Blankenship, U.S. Air Force)

Change the Incentives

An Information Theory of Victory

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Show me the incentives and I'll show you the outcome.

—Charlie Munger

We're getting our rear end handed to us in the information space.

—Gen. Glen D. VanHerck, U.S. Air Force

Within the information community, it is taken as a near-article of faith that measuring effectiveness is what matters in determining whether an information activity is successful. The following discussion challenges that assertion and offers an alternative framework that could fundamentally alter how information activities are planned, executed, and assessed.

Despite increased discourse concerning the role of information and influence in achieving success in modern conflict, there remains a nagging sense among military leaders, policymakers, and the public that the United States is constantly on the back foot in this arena.¹ It is routine for political and military senior leaders to claim that the United States is *losing* the information war against adversaries who are more nimble, shameless, and aggressive.² How can it be the case, they openly wonder, that the strongest Nation in the world, which is also home to Hollywood and big-brand marketing talent, cannot compete with the information efforts of hypocritical autocratic regimes, low-budget nonstate actors, or lone wolves leveraging artificial intelligence to pump out cheap propaganda?

The answer to this question is both simple and dull. We are using the wrong bureaucratic incentives. First, humans are messy and do not think, feel, or behave in ways that can be neatly categorized. While this seems intuitive, it does not prevent well-meaning planners, practitioners, and theorists from positing that human activity can be optimally stratified, quantified, and measured. Second, information professionals often conceptualize and demonstrate success in ways incongruent with their senior leadership's goals and desires; they tend to chase a metric that may be unknown to senior leaders. Changing the status quo and achieving success in the modern information environment requires a shift in thinking away from an *outcomes*-based model rooted in industrial-age management practices and toward an information-age model that recognizes and

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accepts the subjective messiness of audiences and incentivizes *output* in conjunction with a theory of victory.³

Informational Heresy

The notion that measuring qualified output might be preferable to measuring desired outcomes is likely considered heretical among many information professionals.⁴ Achieving positive measures of effectiveness is routinely accepted as the gold standard in demonstrating success both internally and to key external stakeholders.⁵ However, examining how assessments intermingle with incentives within large bureaucracies reveals problems that contribute to the legitimate sense among many leaders that the United States is losing in its information efforts vis-à-vis its adversaries.

To demonstrate that a focus on achieving objective effects limits U.S. information efforts, an exploration of critical definitions is required, particularly nebulous and oft-redefined terms like information. I argue that achieving firm definitions is a distraction that stands in the way of effective operations in this realm. Additionally, a critical examination of prevailing management and assessment practices indicates that incentivizing outcomes tends toward dysfunctional incentive structures that often fail to meet stated objectives. Instead, adapting theory of victory concepts to information activities creates a pathway toward an output-based system that aligns with what many businesses and brands have discovered is critical for sustained long-term success and growth.⁶ These theory of victory concepts were tested in an experimental information war-game exercise in the fall of 2023 in support of building a deeper understanding of “what winning looks like” in the information space.⁷ Finally, this discussion concludes with important qualifications and potential recommendations for implementation.

Eternal Term Warfare

There is an increased awareness across the joint force of the importance and relevancy of information in campaigning, competition, and conflict.⁸ At the same time, there is corresponding confusion over how information concepts fit into greater national strategy, how they are operationalized, and perhaps most importantly, how operations, activities, and investments can be measured to indicate success.⁹ Much of the confusion

begins with the persistent inability to settle on widely accepted and sufficient definitions.

Despite rigorous intellectual effort, definitions regarding information and information activities remain nebulous and dynamic.¹⁰ Once a qualifier is affixed to information, it becomes difficult to understand where one effort begins and another ends. How is information warfare different from psychological warfare? What about influence activities or cognitive warfare?¹¹ These terms are constantly deployed and redefined internally and externally with little thought to what they may be subsuming or excluding. This incessant defining and redefining of adjacent words is referred to some as “term warfare.”¹² While defining terms is important and can clarify thought, remaining in a constant state of bureaucratic “term warfare” can inject uncertainty, skepticism, and timidity into planning and operations. Meanwhile, adversaries appear to be less interested in what a particular activity is called and more interested in what it can accomplish.

For many years, the term “information operations” was used to describe in a general sense the activities taking place and serving as the term for the coordinating function that encompassed other roles of information activity like military information support operations, electronic warfare, or public affairs.¹³ In recent years, this changed in Army doctrine to information advantage, which differs from joint doctrine’s emphasis on operations in the information environment.¹⁴ Further, Army doctrine describes the information efforts of adversaries as *information warfare* but does not use the same term to describe its own activities.¹⁵ Meanwhile, both the Navy and the Air Force have embraced the term information warfare but to different ends.¹⁶ To further muddy the waters, academics who study the same activity and journalists who report on it do not make these same distinctions, referring to related activities variably as information warfare, information operations, psychological warfare, or propaganda.¹⁷ While the activities taking place have not changed much in recent years with the important exception of the introduction and proliferation of new communication technologies, the terms used to describe them continually change, increasing confusion among both practitioners in charge of their execution and leaders responsible for providing direction and oversight.¹⁸

While some might argue that without firm definitions it can be prohibitively challenging to plan and execute effective operations, accepting the nature of these types of activities as inherently murky and arguably undefinable presents an alternative way forward. Reviewing the history of defining information, we see that shifting definitions is one of the only constants. Accepting a sufficient definition for a given time and context is likely to satisfy the needs of the day, fully knowing that as things change, so too will the definitions. Finally, the divergence of opinion on definitions should be welcomed, as this leads to additional research and thought that can advance the discourse. Considering that strong opinions and disagreements abound, to state categorically that an enduring decision has been made regarding a definition would likely hamper future efforts toward growth and innovation. The subsequent discussion accepts the vague and often changing nature of these terms and argues that the constant fight to redefine them only adds to the confusion about what constitutes success. Although unsatisfactory, planners and practitioners can move forward with an understanding that definitions will likely shift with different audiences and contexts. With that, a deeper exploration of the role that metrics and incentives play in information reveals a much larger problem.

Metrics and Incentives: A Broken Cycle of Good Intentions

Leaders expend precious resources to achieve their objectives. Stakeholders up, down, and adjacent to the chain of command want to know if those resources are employed effectively. Demonstrating success is often the key criterion within bureaucracies to gain continued support in executing a plan or course of action. In rigid bureaucracies, demonstrated success serves as a powerful career incentive and often leads to better evaluations, increased promotion potential, desired assignments, and enhanced professional prestige. This confluence of factors—the need to demonstrate success as good stewards of public resources coupled with the incentive structures of large bureaucracies—is a fundamental contributing factor to the inability to compete effectively with adversarial information efforts. This confluence leads to a broken cycle of good intentions, and at the heart of this cycle is a military culture obsessed with metrics.¹⁹



Flying under radar control with a B-66 Destroyer, Air Force F-105 Thunderchief pilots bomb a military target through low clouds over the southern panhandle of North Vietnam, 14 June 1966. (Photo by Lt. Col. Cecil J. Poss, U.S. Air Force)

While the introduction and proliferation of performance measurement into military activity was well-intentioned, research reveals a chaotic system that often results in misguided efforts that frequently fail to achieve their objectives. At the onset of the Cold War, the U.S. military began adopting emerging business practices that emphasized hyperefficiency and performance measurement to compete with the centralized

whether that success is real, exaggerated, or completely false.²⁶

In the realm of information, some might argue that this problem simply requires identifying better metrics.²⁷ That is, achieving certainty that the metric measured is precisely correct and its successful manipulation will deliver the objective desired. While this solution is tempting—especially in an era of machine

“ This rubric served as a *theory of victory*—that more enemy dead and more bombs dropped would shift the dynamics of the war toward a U.S. victory. ”

planning efforts of the Soviet Union.²⁰ As far back as 1956, there were indications that an overreliance on metrics could lead to “dysfunctional consequences” within a system.²¹ A simple example of this is known as the “ratchet principle,” where workers who meet a certain quota of productivity are rewarded with an increased quota, often without an increase in the means to accomplish the additional work.²² This can lead to workers deliberately ensuring they never meet the initial quota to avoid the imposition of a higher workload.

A well-known military example of dysfunctional consequences in performance measurement is found during the Vietnam War, where the U.S. military measured success by the number of enemies killed and the tonnage of bombs dropped.²³ Once measurements are introduced into a system, incentives tend to realign and reward short-term success over long-term progress, regardless of any safeguards implemented by management. In this case, incentives realigned leading to an increase in the number of enemies killed in action and tonnage of bombs dropped as that was what senior leaders valued as indicative of success. This rubric served as a *theory of victory*—that more enemy dead and more bombs dropped would shift the dynamics of the war toward a U.S. victory.²⁴ Only in this case, the theory of victory was flawed, resulting in tactical efforts that undermined the war effort.²⁵ Additionally, military leaders under both career and operational pressure to produce results may contort themselves and their data to demonstrate success,

learning, artificial intelligence, and “big data”—even when conducted flawlessly, processes that deal with the thoughts, feelings, and behaviors of humans are rooted in social science approaches that are limited in what they can definitively prove.²⁸ For example, in attempting to determine how to measure the *will to fight*, researchers at RAND argued that while literature, doctrine, and some of the most prominent military leaders throughout history have stated that the *will to fight* is the most important factor in war, it remains nearly impossible to prove or measure.²⁹ However, to satisfy the deeply ingrained military desire for objective metrics, the authors offer an impressive model that includes over twenty factors at the individual and unit levels to generate a potential model with quantifiable metrics. Despite this exhaustive and impressive work, the authors conclude that “we can quantify the will to fight in simulations but we can never accurately quantify the will to fight in the real world.”³⁰

Further research into the effects of metrics and performance management systems on bureaucracies reveals systemic and emergent problems. Chief among these is a performance measurement concept known as Goodhart’s law, which states that “when a measure becomes a target, it ceases to be a good measure.”³¹ The classic example comes from a phenomenon during colonial British rule of India. British officials placed a bounty on the skins of cobras to curb the growing population. Local hunters quickly realized they could exploit the system by breeding cobras at scale and

delivering their skins to receive the bounty rather than hunting them—a much less dangerous endeavor.³²

While it may be possible to craft the perfect measure to ensure that only the specific desired behavior is enacted, evidence and history show that, in most cases, the measure becomes the target precisely because of the incentive structure built into the system. Considering the wide array of internal and external factors that coningle and interact with a specified metric, it is difficult to predict how all audiences and practitioners will behave to influence it.

In the case of information, identifying assessment criteria, often in the form of crafting measures of effectiveness, is one of the first steps in planning.³³ Before deep thought or analysis begins on target audiences, susceptibility, or dissemination methods, planners are already considering what metrics might be used to determine whether the effort will be considered successful. While this may appear logical and forward-thinking, Goodhart's law states that once the measure becomes the target, it fails to be a good measure. Additionally, practitioners under immense operational pressure to deliver results are incentivized to ensure that the measure moves in the desired direction and will likely dedicate everything they can to make that happen.³⁴ A savvy planner or practitioner may be tempted to craft an information effort that is more likely to generate tangible, observable results rather than a potentially superior effort that is prohibitively difficult to measure.³⁵

Researchers Leo Blanken and Jason Lepore further explore the problem of incentive structures in military operations.³⁶ They argue that in hierarchical systems, the principals who set objectives and policy (i.e., political and military senior leaders) are often far removed from the agents that carry out the tasks (i.e., military planners and practitioners).³⁷ Further, the principals are often unaware that the agents tend to pursue a metric that was generated *as a way* to demonstrate success as opposed to achieving the actual goal, which may have a distant relation to the established metric. This distance contributes to the confusion between the principal and the agent. While an information practitioner may be able to demonstrate apparent success through the attainment of positive measures of effectiveness (i.e., the desired change is achieved), achieving those metrics was never the goal of the senior leader in the first place,

and thus the lingering sense of “losing” in the information environment. This cognitive disconnect between the principal and the agent occurs precisely because of the imposition of a flawed performance measurement system that does not match the task.³⁸

The confluence of performance measurement and metrics, bureaucratic incentive structures, and the unique subjectivity of influencing thoughts, emotions, and behaviors sits at the heart of the problem of achieving success in information efforts. Effective leaders demand results and want to demonstrate that they are good stewards of public resources while also being successful at achieving the goals of their institutions. Good practitioners are diligent in demonstrating that their efforts are effective, typically through communicating the successful attainment of desired outcomes with measures of effectiveness. Unfortunately, research on the subject that stretches back nearly a century indicates that under the best conditions, metrics intermingling with bureaucracies often leads to dysfunction. Add to this the inherently difficult task of measuring abstract concepts like the emotions or thoughts of a target audience in relation to a specific message or information campaign, and it becomes clear that the current system is unlikely to satisfy the needs of all who are involved. This phenomenon is precisely what leads many to rightly conclude that the United States is losing in the information space. To overcome this, an alternative to classic assessments is needed that provides an overarching concept that demonstrates “what winning looks like” in the information environment.

The Need for an Information Theory of Victory

The joint force has recognized that its adversaries are not confined by neat categorizations between war and peace, and that these adversaries routinely engage in forms of warfare below the threshold of armed conflict.³⁹ The shift toward competition provides a useful framework for conceptualizing and planning operations to compete for advantage in the event of war. Inherent to this shift is the important role that information and influence play in this concept.⁴⁰ While the doctrine, tactics, techniques, and procedures concerning information remain sound, an overarching concept that attempts to conceptualize “what winning looks like” in the realm of information is lacking.⁴¹ Borrowing from theory of

victory studies and identifying a potential theory of victory for information is the first step in developing an approach that stands a chance of achieving success.

Theory of victory research is a subset of war studies that attempts to fill the gap between crafting effective strategy and achieving the policy goal desired. It attempts to answer the question of how we get from the attainment of the military objective to the achievement of the policy goal. Two war studies scholars, Bradford A. Lee and J. Boone Bartholomees offer complementary approaches to conceptualizing a theory of victory that can be adopted for information. Following a summary of these approaches, they are applied to information to introduce a new model for conceptualizing victory in information.

Lee argues that a theory of victory represents “the assumptions that strategists make about how the execution of the military operations that they are planning will translate into the achievement of the political objectives that they are pursuing.”⁴² While lengthy, that statement captures precisely what a theory of victory is—an assumption about how friendly activity will shift the dynamics of a given system in such a way that the adversary will “give up, go away, or go down swinging.”⁴³ Additionally, Lee recognizes that it is difficult to measure the effects of these activities, with the exception of “first-order military effects” like destroying equipment. Thus, he argues that assumptions are paramount in any theory of victory. While the word *assumption* often carries a negative connotation due to its ambiguity and introduction of risk, Lee argues that assumptions are essential when conceptualizing victory against a complex adversarial system.⁴⁴ Furthermore, assumptions should be based on tangible qualities like expertise, experience, data, cultural acumen, etc.; they are not simply gut feelings or the absence of facts. Finally, Lee offers an important caveat for democracies. To sustain continued support toward achieving victory, relevant stakeholders, from military and political officials to the public, must see incremental dividends over time.⁴⁵ Examples of incremental dividends include the raid that killed Osama bin Laden as part of the larger Global War on Terrorism, and the early disclosure of Russian deception intentions at the outset of the Russia-Ukraine War in 2022.⁴⁶ These incremental dividends provided a satisfactory and tangible “win” as part of a much longer and more difficult to measure effort against an adversary.

Bartholomees takes a different approach to theory of victory studies, beginning with the claim that “victory in war is at the most basic level an assessment, not a fact or condition.”⁴⁷ Importantly, he argues that this assessment is subjective, contextual, and hierarchical, and not objective, absolute, or equal among actors. He stratifies the importance of these assessments in the American context, arguing that it is (1) the American public, (2) military and political elites, (3) American partners and allies, and (4) world opinion that determine whether victory was achieved or not, in that order.⁴⁸ Additional research outside of war studies identifies the concept of intersubjective belief as relevant, where the beliefs of individuals and groups are formed through interaction with one another, and these intersubjective beliefs wax and wane as new information is revealed or norms change over time.⁴⁹ Altogether, Bartholomees presents the importance of subjectivity, audience, and context in achieving victory.

The combined theory of victory research of Lee and Bartholomees offers a framework toward a potential theory of victory for information. From Lee’s formula for victory, we can propose that a theory of victory for information consists of “the *assumptions* made about *actions/activities* taken to *influence dynamics* within the *information environment* to achieve a *stated objective*.”⁵⁰ And from Bartholomees, we understand that victory is an intersubjective assessment made by various actors in specific times and contexts. This combination of factors—a concept for a theory of victory and an understanding of how victory might be assessed—opens the door for experimentation.

Testing a Theory of Victory in an Information War Game

To test this, I designed an information war game based on theory of victory research and prevailing information concepts. The war game aimed to replicate the complex dynamics inherent in information activities, the incentive structures of bureaucracies, and the subjective assessments of multiple actors. In the war game, two information professionals from opposing states compete for influence over multiple target audiences. Using cards marked with various information activities along with a corresponding value (1, 2, 3), the players attempt to influence generic target audiences to support their side. While this influence effort takes



Soldiers with Task Force Guardian, 41st Infantry Brigade Combat Team, war-game courses of action prior to a combat operation as part of an exercise during the Joint Readiness Training Center rotation (JRTC) 24-09 at Fort Johnson, Louisiana, 18 July 2024. The JRTC goal is to create realistic environments that help prepare units for complex operations. (Photo by 1st Sgt. Zachary Holden, U.S. Army)

place, additional players take on the roles of political/military elite, partner and ally nations, and world opinion, each with their own ability to register assessments of the two sides. Over the course of multiple rounds players experience how the other players perceive their actions and can adjust their tactics in attempt to “win”—which in this case means maintaining a positive sentiment among a majority of players while also influencing the various target audiences to their side.

An important aspect of the war game concerns the interactions between players. While the influence professionals have full autonomy to play any cards they wish, the political/military elite are responsible for providing additional cards to them at the end of a round. Thus, the political/military elite players have influence over which cards are possible to play in the first place—a dynamic that replicates authorities and permissions in the real world.⁵¹ A failed information effort, for example, might result in negative feedback from tangential players, reducing the appetite among the political/military elite for similar activities in future rounds. These dynamics serve as a simulation for what information professionals face when trying to demonstrate success (e.g., effectively influencing a target audience) while their supervisors claim that in the grand scheme, they are “losing” based on the subjective responses of various actors who are often unseen and unaccounted for by the information professional.

While the scope of the war game was small and the results cannot be generalized outside of the context in which it was played, it provided a useful tool for experimentation. Based on previous research, I tested a hypothesis that a high volume of information activity—increased output—would likely contribute to an increased subjective assessment of “winning” among various actors. This was confirmed in the specific context of the war game.⁵² However, further experimentation is required to generalize and build upon these results. For example, during war-game sessions, it became clear that participants often made subjective assessments based on criteria not controlled for in the game (e.g., their level of familiarity with information concepts). Future research using similar methods could attempt to control and isolate specific criteria to generate deeper insight. Finally, the game itself proved to be a valuable educational tool for demonstrating how information and assessment work in a safe and

replicable environment. At the conclusion of a given game, players can state why they thought one side was winning over the other, and with more data, trends are likely to emerge that could inform the development of new concepts.

Not Everything That Counts Can Be Counted

Research informs us that understanding exactly why humans choose to think, feel, and act in certain ways is likely to remain at best an imprecise discipline. Attempts to quantify attributes that are not readily quantifiable introduces the patina of hard science and unqualified certainty. Large bureaucracies—and especially rigid hierarchical bureaucracies like the military—tend to reward short-term success often demonstrated through data manipulation. Incentive structures coalesce around a strong desire at both the individual and organizational level to prove that a course of action is successful. This incentive structure can lead to timidity among information professionals who may choose to pursue a metric that is easy to influence rather than the activity that might truly be effective but difficult to measure.

With that understanding, there is an opportunity to introduce an alternative approach based on two important claims. First, a recognition that as success is currently demonstrated, career and organizational structures incentivize agent behavior that often fails to deliver the stated objective of senior leaders—the agents tend to chase the metric, not the goal. Second, a recognition that despite heroic and continuous efforts, measuring human thought, emotions, and behavior will continue to be an imprecise science. The focus on delivering objective results can prevent organizations from success as they are expected to prove that a course of action *will* work or *did* work in order to continue. This dysfunction can be corrected by adopting a theory of victory for information based on qualified assumptions concerning the effects of informational actions/activities and pairing this with an organizational incentive structure that is concerned with qualified *output* over tangible *outcomes*. Stated plainly, if organizations measured *output* in accordance with a theory of victory, planners and practitioners would be properly incentivized to meet the needs of the current information environment. Assessments would then be

focused on ensuring the right activities are conducted in accordance with a theory of victory, instead of whether those activities can be definitively linked to tangible outcomes. Finally, information war games can explore and experiment with various criteria that are most likely to lead toward victory.

There are three important qualifications worth considering. First, for a theory of victory for information to be successful, it must be correct. Returning to the Vietnam War example, a theory of victory predicated on body counts and tonnage of bombs dropped was incorrect. That theory did not account for the totality of the dynamics at play, like the role of the American antiwar movement and domestic politics.⁵³ While a theory of victory can be wrong, without one, planners and practitioners are left to do *the next best thing* in perpetuity. Second, it is possible that as technology and data collection improve, the ability to accurately measure the effectiveness of specific information efforts will also improve. The rapid advances and use cases in artificial intelligence, for example, have generated intense discussion on how new technologies might be used in future information efforts.⁵⁴ However, the importance of context—especially cultural context—is often absent from this conversation, as new technologies impress stakeholders looking for the next advantage. While technological developments may enhance the ability of data collection and analysis in a data-rich environment, the same may not be the case in a denied area where

information activity is taking place.⁵⁵ Finally, there are cases when achieving strong measures of effectiveness remain the best assessment for determining whether an information effort was successful or not. Instances with a clear behavioral outcome, like surrender or defection, are best accomplished through classic assessment. Adopting theory of victory practices to information does not mean casting aside traditional assessment and the need to determine effectiveness—those assessments are still necessary. However, this provides an alternative framework that offers a way to measure activity that may have an effect absent of clear measures of effectiveness.

The concepts proposed in this research cut against the grain of established practice and are likely to be met with understandable skepticism. While there is a seeming consensus on the importance of information as well as an appetite for increased effectiveness, little is offered that deviates from calls to do more or do better.⁵⁶ This research offers an alternative. Stakeholders who have oversight on information activity should consider the possibility that the current system as it exists may be flawed and remain open to alternatives. Planners and practitioners in information should consider the concepts described in this research as potential avenues for achieving success. Finally, experimentation—especially in the form of information war games—should be encouraged and incentivized to garner additional insight and criteria toward what winning looks like in the information environment. ■

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