

Information Warfare

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In September 2020, Vice Chairman of the Joint Chiefs of Staff and Chair of the Joint Requirements Oversight Council (JROC), General John Hyten articulated a significant problem for the warfighting into the future. He said, “I’m not sure exactly how we’re going to document what information advantage really is.”¹ At face value, this may disturb many, if not most, military members who have grown in their careers expecting precise definitions of terms and vision statements of what future warfare will look like to flow from the Joint and Service Staffs. It can also be disturbing that perhaps there is not a concise definition of information advantage after decades worth of researchers have published a virtual mountain range of digital content extolling the urgent requirement for the United States and the Defense Department to prioritize how we leverage information to maintain American global supremacy.

General Hyten’s additional statements at the JROC hearing provided some amount of relief that at least the sense of urgency is far from lost on the Joint Staff who is leading the information advantage subcomponent of Joint Warfighting with support from the military Services. He indicated everyone involved in the Joint Warfighting Concept development effort “understood conceptually that [information advantage] had to be one of the supporting concepts, because information advantage is going to be the critical piece.”² Additionally, he provided a sketch of a pathway forward noting, “defining what information advantage actually will entail in a high-end conflict, and what is needed to provide it, is not straightforward. This is because creating information advantage is predicated on managing data, setting data standards, and iterative software development in ways that are new to DoD and the defense industry base.”³ And herein lays a significant problem with much of Joint and Service policy and doctrine related

¹ <https://breakingdefense.com/2020/09/jroc-struggles-to-build-information-advantage-requirement/>

² <https://breakingdefense.com/2020/09/jroc-struggles-to-build-information-advantage-requirement/>

³ <https://breakingdefense.com/2020/09/jroc-struggles-to-build-information-advantage-requirement/>

to the information domain. Policy and doctrine is developed and promulgated in order to orient to changing technology – to the tools, processes, and products which enable warfighters to exist and participate in the information domain – but do not articulate what the advantage is to be gained. In other words, information warfighters are set adrift on raft, with paddle and provisions to survive and likely take action in their domain; but with a compass which does not show true north.

The purpose of this white paper is to get the compass working – to set it for true north or perhaps a grounding point for USAF and Information Warfare by proposing a definition for information advantage. In order to establish this grounding point, this paper argues current USAF Information Warfare Strategy aims to generate activity but misses an opportunity to point Airmen at a defined advantage. Subsequently, it proposes a definition for information advantage and then recommends two ways forward. First way forward is for the USAF to clearly articulate the definition of advantage in its Information Warfare Strategy and second, it should improve its information operations assessment capability in order to pursue the advantage.

MISSING THE ADVANTAGE

Advantage may be defined as a factor or circumstance of benefit to its possessor.⁴ Most helpful to this examination, however, is the definition of advantage which considers relation between two or more entities. As such, advantage is a “superiority of position or condition” or, a “condition giving a greater chance of success.”⁵ For example, the high ground can be said to provide advantage but the advantages gained are only appreciated when viewed as a differential between an entity on higher ground than another. When Obi Wan Kenobi claimed the high

⁴ <https://www.merriam-webster.com/dictionary/advantage>

⁵ <https://dictionary.cambridge.org/us/dictionary/english/advantage>

ground over Anakin Skywalker, Kenobi saw the advantage he'd gained over his once pupil prior to discerning Skywalker's intent to try and reclaim the high ground and exclaimed, "don't try it." However, knowing something is advantageous is not the same as defining what the advantages are. In the Kenobi-Skywalker example, the high ground was an advantageous state for Kenobi, but the advantages themselves were concepts such as improved view of the battlefield and ease of movement to the engagement relative to his adversary, Skywalker. From this perspective, advantages become objectives to be achieved by any means available vice an advantageous position to be taken which may provide singular or limited courses of action. As it is in Star Wars, so it is in non-fictional military affairs – establishing strategy, lines of operation, or tactics should be based on an understanding of advantages, or objectives, to be gained relative to the adversary vice an advantageous position which may make ourselves better than we were but do not compare out effectiveness to that of the adversary.

The National Defense Strategy (NDS) focus on the US moving from successive regional operations to great power competition. In this environment, traditional organized power structures erode and disorder fills the void. In order to meet the challenges of this environment, superior capabilities in the information domain are essential for the success of US military Services. The US Navy and Air Force pursue advantage in the information domain in order to arm information warriors and chart a course forward in the new environment. While both highlight the advantageous position information can enable, neither articulate the advantage to be gained in relationship to US adversaries.

The US Navy builds its Information Dominance Corps to ensure America's national and economic security. Conceptually, the ultimate advantageous position (or state) in war is

dominance “to compel our enemy to do our will.”⁶ Dominance is achieving a state of complete triumph over the adversary such that they are compelled despite their resistance. While this state may be unattainable in practice due to invariably inaccurate intelligence, friction at all levels of decision-making, and the ever-present effects of chance in war, this should not halt the struggle for Services to achieve advantage associated with the pathway toward dominance.

In accordance with NDS direction, the Navy strives for Information Dominance because, “Today’s technological advancements make information both a formidable weapon and a constant threat – to the point that it has evolved into a type of warfare all its own.” The Navy defines Information Dominance as the operational advantage gained from fully integrating our information functions, capabilities and resources to optimize decision making and maximizing warfighting effects.⁷ Davis’ critique of this definition is “in laymen’s terms, if we take a bunch of expensive high-tech stuff and mash it all together it will help us do stuff faster and more efficiently.”⁸ In the lay-person’s terms, the major problems with the Navy definition of advantage in the information domain are first, speed and efficiency do not equal dominance just as the hare illustrated in losing to the tortoise. And second, as stated previously, it causes more confusion than focus as it lacks indication of when the state of dominance will be achieved over the enemy.

By way of comparison, the USAF has put in significant effort to evolve capabilities in the information domain by standing up an Information Warfare Numbered Air Force, 16th AF. 16th Air Force has proposed a new approach to warfare labeled Convergence for the Information War. Convergence aims at gaining an advantageous position in a world in which traditional

⁶ Clausewitz

⁷ <https://www.navy.com/sites/default/files/2018-03/0210-IDC-brochure.pdf>

⁸ <https://www.doncio.navy.mil/CHIPS/ArticleDetails.aspx?id=6075>

organized power structures erode and rewards those who can leverage information for strategic advantage.⁹ 16th AF defines Convergence as “the integration of capabilities that leverage access to data across separate functions in a way that both improves the effectiveness of each functional capability and creates new information warfare outcomes.”¹⁰ Unfortunately, despite improvements in ways and means of USAF information domain capabilities, it falls short in a similar way to the Navy’s Information Dominance approach as it pertains to the ends of strategy. In other words, both Information Dominance and Convergence approaches align ways and means to do more stuff better and faster without aligning toward a defined advantage in the information domain.

DEFINING INFORMATION ADVANTAGE

As articulated in the author’s personal studies paper (PSP) as part of Air War College research, military theorists offer substantial assistance to a definition of information advantage toward which the AF can point Convergence and other information domain strategies. This section will summarize the conclusions reached in the PSP in order to provide a definition for information advantage. An appropriate start to a theoretical evaluation of the advantage of leveraging information is examining perhaps two of the most cited military theorists in AF professional military education: Jomini and Clausewitz. Jomini did not include information as one of his Principles of War. However, examination of the theory shows the significance of information in Jomini’s theory is its direct relationship with decision points across the battlefield. The PSP concluded that Jominian success points to the criticality of information on choice and

⁹ 16AF Convergence

¹⁰ 16AF Convergence

decision to establish initial selection of points and the timing of decisions for military actions across lines of effort.

Similarly, Clausewitz defined information to be “all the knowledge which we have of the enemy and his country; therefore, in fact, the foundation of all our ideas and actions.”¹¹

Clausewitz’s theory proposes military genius as the attribute to deal with information friction and, according to Clausewitz, encompasses “all those gifts of mind and temperament that in combination bear on military activity.”¹² Just as Jominian success depends on information impacting choices within lines of operation, Clausewitzian success is heavily impacted by information driving decisions as interpreted by genius. Clearly, these two theorists articulated the integral relationship between information and decision-making. Another theorist making drawing a critical link between information and decision-making is Boyd through his Observe, Orient, Decide, Act (OODA) loop theory.

The author’s PSP research highlights that in relation to aforementioned theorists, Boyd’s theory inextricably links information and decision-making to success operating in complex environments. Boyd noted, “without analyses and synthesis, across a variety of domains or across a variety of competing/independent channels of information, we cannot evolve new repertoires to deal with unfamiliar phenomena or unforeseen change.”¹³ Boyd’s exploration of decision-making was, in part, influenced by Beyerchen’s article, “Clausewitz, Nonlinearity, and the Unpredictability of War”, which emphasized the relevance of the new sciences to the study of war. And so it can be reasonably surmised that OODA theory, while applicable to all decision-making endeavors, is pointed at maximizing opportunity to achieve success amidst

¹¹ Clausewitz, *On War*, 117.

¹² Clausewitz, *On War*, 100.

¹³ Boyd, *A Discourse on Winning and Losing*, slide 2.

complex and wicked situations found in war whose problems are inundated by “unpredictability, which results from interaction, friction, and chance and is a key manifestation of the role that nonlinearity plays in Clausewitz’s work.”¹⁴

MacCuish takes analysis of Boyd’s theory a step further. He notes Boyd’s take that, “orientation shapes decision, shapes action, and, in turn, is shaped by the feedback and other phenomena coming into out sensing or observation window.”¹⁵ He posits what Boyd is saying is, unless properly oriented... “your resulting decision will necessarily be flawed.”¹⁶ MacCuish signals that close examination of Boyd’s treatment of orientation is critical to understanding what Boyd tried to convey through his OODA theory. Boyd recorded the following on orientation:

Orientation is the schwerpunkt. It shapes the way we interact with the environment-hence orientation shapes the way we observe, the way we decide, the way we act. In this sense orientation shapes the character of present observation-orientation-decision-action loops-while these present loops shape the character of future orientation.

With this in mind, it is reasonable to conclude that Boyd, Clausewitz, and Jomini provided frameworks within which information and decision-making by both self and adversary can be examined and evaluated – frameworks in which to reflect and develop genius and how we orient ourselves for future decisions. And thus they point to a definition of advantage to pursue through information: an understanding of one’s own decision-making in comparison to an adversary’s.

Essential to this definition is that the advantage is not a measure of which side of a conflict is winning or losing decision-making contests. It is neither making faster turns and shooting more accurately in and from the air, nor conducting faster and more

¹⁴ Airpower Reborn : The Strategic Concepts of John Warden and John Boyd, 62.

¹⁵ http://journal.dresmara.ro/issues/volume2_issue2/03_maccuish.pdf, 31.

¹⁶ http://journal.dresmara.ro/issues/volume2_issue2/03_maccuish.pdf, 31.

effective information operations, nor producing better military means than our competitors – as great as all of those data points are. Rather, the proposed definition with support from military theorists tries to articulate is that the advantage is much more closely tied to measuring awareness of adaptability than to having the upper hand on an enemy in any given domain or engagement. It is the advantage of understanding the time, place, and nature of making decisions to adapt – to understand our opportunities and mandates to adapt in relation to those of our competitors. This is the information advantage the USAF should seek. From this perspective, the USAF could theoretically be losing an air war or be lagging behind on generating effective outcomes in the information domain. But even from an operationally disadvantageous position such as this, the USAF can possess information advantage and ultimately use it to adapt and gain the upper hand.

WAY FORWARD: ARTICULATE ADVANTAGE AND FOCUS ASSESSMENT¹⁷

Paramount to all other recommendations for a way forward is for USAF Information Warfare and Operations Strategies to point squarely at the advantage they pursue. Combat history has shown the more clear and concise the ends of strategy are, not more effective the military instrument of power can be to align ways and means to achieve it. For example, as the US pushed policy forward with a clear strategic objective in mind for the Korean War, the military means beat back the communists through the flanking operation at Inchon and, “UN troops had authorization from Washington to destroy them through operations north of the old boundary.”¹⁸ The political ends were aligned in strategy with the military means which were organized, trained, and equipped to maximize the opportunity to achieve its objective which, at

¹⁸ Stueck, 277.

its center, was focused on complete victory over opposing fielded forces.¹⁹ When, for numerous reasons, the objectives in Korea lost their specificity, the US struggled to achieve its objectives despite overwhelming military might.

The overwhelming effectiveness of military and information operations can be seen in other instances such as keeping supplies rolling into Berlin, expelling Iraqi Fielded Forces from Kuwait, and taking population centers of Mosul and Raqqa away from a resurgent ISIS. In each case, the advantage to be gained was clear, military ways and means were aligned to achieve that end, and Airmen adapted operations after the plan's first contact in order to maximize the opportunity for success. USAF information strategies must do the same – articulate the advantage they seek as an end for strategy.

If we accept that information advantage is to understand the difference between the quality and speed of friendly force and adversary decision-making and the USAF must better align its strategy to that end, then concepts related to information operations assessment should be the focus of recommendations for change. Information operations assessment ultimately exists as a process to aid in understanding the quality and timeliness of decisions between self and adversary. As with other forms of operational and combat assessment, Information Operations assessment “consists of activities associated with tasks, events, or programs in support of the commander’s desired end state.”²⁰ By contrast, “operation assessments in IO differ from assessments of other operations because the success of the operation mainly relies on nonlethal capabilities, often including reliance on measuring the cognitive dimension, or on nonmilitary factors outside the direct control of the JFC.”²¹ And so, since Information

¹⁹ Watson AWC Foundations of Strategy, 2-3.

²⁰ https://www.ics.mil/Portals/36/Documents/Doctrine/pubs/jp3_13.pdf, VI-1

²¹ https://www.ics.mil/Portals/36/Documents/Doctrine/pubs/jp3_13.pdf, VI-2

Operations is set to “influence, disrupt, corrupt, or usurp the decision making of adversaries and potential adversaries while protecting our own,” the purpose of the assessment function is aimed directly at the information advantage outlined in this paper. That is, the very purpose of Information Operations assessment is to assess the difference between friendly and adversary decision cycles.

Despite what assessment is supposed to provide for warfighters, military services have a track record of poor performance in this area. For example, General McChrystal noted, “ISAF must develop effective assessment architectures...to measure the effects of strategy, assess progress toward key objectives, and make necessary adjustments.”²² Lt Col Meiter asserts “this statement implies the fact that ISAF conducted eight years of war without having an adequate assessment process in place to evaluate the campaign against national objectives and ensure proper alignment with national goals.”²³ Earlier in modern combat history, Major Janiczek notes, “Consistently, in the multitude of studies that emerged after the Gulf War, combat assessment was singled out as a dismal failure in I MEF as well as in the other components.”²⁴ These callouts from Meiter and Janiczek simply reflect a body of data pointed at broad, systemic, and enduring problems with Service assessment methodologies which result in detrimental effects on military operations such as over focus of operators and planners on the execution of the current plan instead of future plans and decisions.

CONCLUSION

²² Stanley McChrystal, “COMISAF Initial Assessment (Unclassified),” The Washington Post, September 21, 2009, <http://www.washingtonpost.com/wpdyn/content/article/2009/09/21/AR2009092100110.html> (accessed February 27, 2014).

²³ <https://apps.dtic.mil/dtic/tr/fulltext/u2/a603676.pdf>, 1.

²⁴ <https://apps.dtic.mil/dtic/tr/fulltext/u2/a401329.pdf>, 2.

The Joint Staff has struggled to articulate what information advantage really means. General Hyten put a premium on defining what advantage joint warfighters should pursue and whatever this definition turns out to be should be a significant guiding principle for force modernization called for in National and Defense Strategies. Despite the sense of urgency for doctrine and concept of operations development, it is perhaps the ever-increasingly evolving nature of the information and digital age which makes it so challenging to put a finger on a precise definition of advantage in the information domain. The problem in defining advantage leave the USAF focused on improving its use of changing technology in the absence of a clearly defined advantage to be gained over competitors. This paper provides a starting point for pointing the USAF toward solving that problem.

Thus far, DoD attempts to define information advantage have focused on a vague objective simply termed, “the advantage” with the real point of strategy to improve warfighting means rather than align ways and means to a clearly defined end in strategy. In other words, strategies which strive to make military means better than they were yesterday versus understanding whether or not the means are adapting faster or more effectively than competitors. Both USAF and USN strategies highlight the advantageous position information can enable, but neither articulates the advantage to be gained in relationship to US adversaries. For its part, the USAF is currently following an approach which is energetic to produce more, faster, and perhaps better outcomes than ever before, but in the long run the effort may be stymied if not paired with a clearly defined advantage in strategy which gives adequate unifying direction for adaptation.

The proposed definition of information advantage in this paper provides unifying direction. It is a definition founded upon military theory of strategy from Jomini to Clausewitz, to Boyd. The theorists delved deep into concept related to cognition, decision-making, and how

to develop judgment which points practitioners to this definition of the advantage: understand the relative difference between self adaptation and competitor adaptation. The proposed definition is relevant regardless of whether joint warfighters assess they are winning or losing engagements and its pursuit is applicable whether the goal is to gain, regain, or maintain the initiative against competitors.

Finally, the paper provides two ways to push forward in pursuit of the advantage. First, the USAF should capture the information advantage definition in its strategy. History is replete with examples of joint warfighting effectiveness when the advantage to be gained was clearly defined. Likewise the overwhelming power and activity of US military ways and means often struggle to achieve national goals when not aligned to clearly defined ends. Once codified in strategy, assessment operations will be one of the most important activities to improve in order to achieve the advantage. Warfighters across the board have a poor track record in assessment, but because of its very purpose to assess the difference between friendly and competitor decision cycles, it must be a focus area for any effective Information Warfare strategy.